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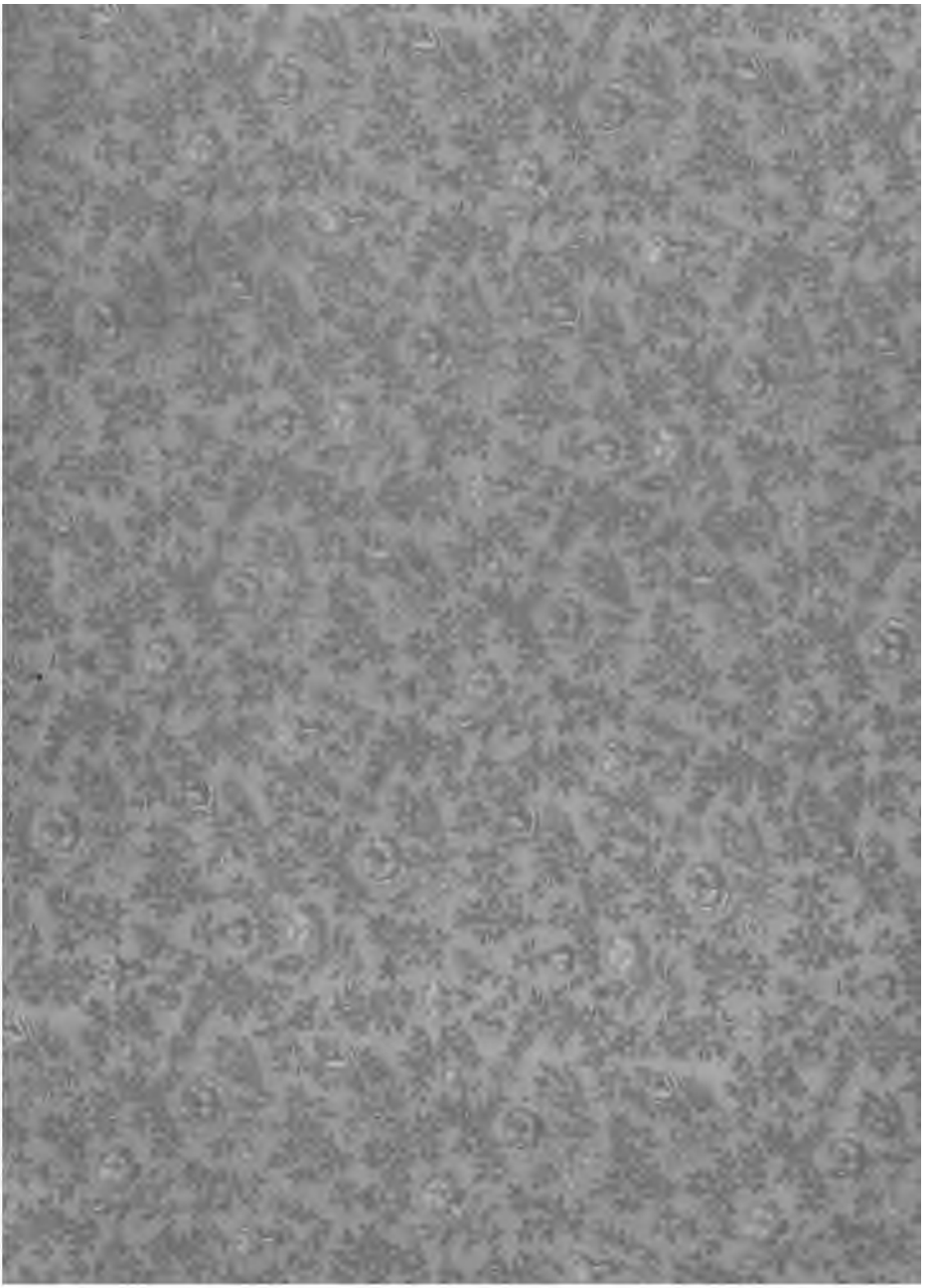

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THE

MODERN CLIMATIC TREATMENT

OF

INVALIDS WITH PULMONARY CONSUMPTION

IN

SOUTHERN CALIFORNIA.

BY

P. C. REMONDINO, M. D.,

Member of the American Medical Association, American Public Health Association; ex-Vice-President California State Medical Society; Member of the State Board of Health of California, and President of the Board of Health of the City of San Diego; Member of the Southern California Medical Society, and of the San Diego County Medical Society.

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DEDICATION.

TO THE MEMORY OF

THOMAS A. DAVIS, M.D.,

A BRAVE SOLDIER, UNASSUMING PHYSICIAN, EXEMPLARY CITIZEN, AND TRUE CHRISTIAN,

THIS LITTLE BOOK IS OFFERED

AS A SMALL TRIBUTE TO HIS MANY VIRTUES AS A MAN AND TO HIS WORTH AS A PHYSICIAN.

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PREFACE.

In preparing this little hand-book I have undertaken to be as brief as possible. Having been originally intended for the Church, and whilst preparing for that occupation having been convinced that some characters cannot—for their moral good—too often ponder upon and recite the ten commandments, it may be found that I have indulged in frequent repetitions. I look upon a physical delinquent pretty much as upon a moral one—and you cannot make him repeat the laws of health too often for his own good. In fact, some would require a Don Doctor Pedro Rezio de Aguera, Licentiate of the venerable University of Ossuna, continually at their side, just such a one as attended the unlucky Sancho Panza when he would have gormandized and probably gone off with the gout or apoplexy from a too free indulgence in roasted partridges in his island government.

Omnis saturatio mala, perdicis autem pessima, quoth the learned and sapient man of science as he austerely waved his wand over the interdicted partridges and on the astonished, hungry, and disgusted Sancho at the same time. Well would it be for the average American had he a Don Pedro Rezio de Aguera to restrain him in his wild chase for political power, honor, spoils, and degradation, as well as to check the senseless greed for hoards of money which cannot be enjoyed, and which are as useless to the majority as were the bags of golden doubloons to Robinson Crusoe.

We all live too feverishly and too intent on the chase for something that brings us to a premature physical wreckage. No physical wreck who has to drag himself around in the vain hope of repatching up a broken-down coustitution can

enjoy wealth—unless it be the miserly possession of the coin. We overestimate our endurance, count not upon the results, aed wake up some fine morning, after all our scrambles, to find that stomach, lungs, spleen, and kidneys are about as demoralized as if we had dropped out of a balloon without a protective parachute.

The spectacled and bald-headed man of science, sitting at our bedside and with finger on our pulse, will then tell us that the haunts that knew us once cannot know us more—not if we wish to live. We must take, he will tell us, the demoralized remains of our internal anatomy into such climes as will deal kindly with such a bankrupt stock. We will be told that our future will depend on making an all-around compromise, and that we must so regulate the demands on our economy that our organs will be called upon to do but a mere fraction of their former work, or be obliged to exhibit but a small fraction of their former resistance.

We will be advised to take ourselves off to Southern California and go into its climatic stocks or in its atmospheric dry-dock for repairs. How much repair can be made will greatly depend on how soon we go into dock after noticing signs of a breakdown. None come too early.

The object of this book is to enlighten such weary pilgrims on their journey, and to tell them what they may expect and what to do when they get there. It is also intended to guard them against disappointments. The average invalid may be as unruly and as ungrateful as Sancho Panza, but we shall feel that we have done our duty to him nevertheless. We have given him good advice, and it remains for him whether he will commit passive suicide or not. Most men, however, are like the Samson of Scripture—no amount of warnings will keep them out of the hands of the Philistines; they are bound to land there—shorn and fast, hand and foot. Others, however, take warnings and will listen

—experience has taught them some wisdom—and for such this little book is written.

As observed, the book is brief. Those wishing to consult more elaborate treatises and gain more information, can do so by reading Charles Dudley Warner's "Our Italy," or Widney and Lindley's "The California of the South." T. S. Vandyke's "Southern California," and my own work "The Mediterranean Shores of America," also give a full and detailed history of the physical geography and meteorology of the regions in question.

In closing, I acknowledge my indebtedness for valuable assistance from Dr. A. K. Johnson of San Bernardino, and from Dr. Hearn, the gentlemanly officer in charge of the Weather Bureau station at San Diego; also to the officers of this service in Los Angeles and Washington, and to the works of Hugh D. Vail, of Santa Barbara, and of Dr. F. D. Bullard, of Los Angeles. My thanks are also due to the *Southern California Practitioner* and to the *Occidental Medical Times* for kindly favors.

INTRODUCTION.

To look for an utter absence of all diseases in Southern California would be as idle as to look for an utter absence of all immorality or signs of mental, moral, and physical degradation in a convict colony; the latter would necessarily be made up of criminals of all sorts, and of the officials and families or friends who accompany them in their exile. Southern California is—although in most senses the Garden of Eden of the United States—nothing more or less than the American Siberia for those who in their ignorance or recklessness have been inconsiderate enough to live in defiance of sanitary laws. Be it a disregard of ventilation, proper working-hours, diet, temperance, or of the known fatality that follows continued associations with tubercular persons, or be they the victims or fruits of a marriage wherein all laws of heredity concerning diseased condition have been trampled upon, the so constituted criminal against the laws of nature soon finds that an existence on this earth is only to be maintained by a compromise which involves an exilation to these southerly shores. To remain longer in an unfavorable climate with diminished vitality, lessened resistance, and a shattered constitution, is but to court annihilation and death. To depart, is to increase the chances of living—cer-

tainly on a diminished scale and with circumscribed usefulness, but still with a prospect of completing the full term of natural life. Of such persons is largely made up the population of Southern California. To argue that these impaired organisms, running on a "ticket of leave," do not, like the moral criminal and convict, occasionally relapse, would be idle, just as it would be idle to assert that many, even with an apparent arrest of the active disease, do not, after years of gradually lessening vitality, finally succumb to the inevitable. Nor can we deny that an impaired organ may bring about defections in other organs sufficient to cause death; but it can be truly said, in view of the varied and numerically great mortality statistics, *that a well man will stand less chance of ever becoming sick here, and that an invalid will, on the average, live longer and more comfortably and with the greatest possible and probable chances of an ultimate recovery, than in any other portion of the United States.*

The great equability of the climate, and the absence of high winds and other disturbing meteorological factors, are wonderful when contrasted with the weather elsewhere. We have variability, rain, fogs, wind, dust, moisture, and other climatic factors, in common with the rest of the United States, so that when we claim for our climate great equability we do not wish our readers to understand that Southern California is run like a great chicken incubator—with electro-thermic adjustments to maintain the equable

temperature of a hatching-machine; we simply mean that, compared with other places, some of our localities enjoy the greatest *possible* equability, just as we mean, in a comparative sense, that our climate offers the greatest possible chance for life to a wrecked, shattered, and demoralized physique. There are worn-out watches which must be wound up twice in the twenty-four hours to keep them from losing time or from running down, and there are human beings precisely in the same condition, except that in the watch you may renew the mainspring, and in the man such a change or renewal is impossible. One must not expect climate to make up for all this. Climate will simply see to it that with proper and timely winding up and with more than usual care such an organism may go along, like a watch that has seen its best days, for a good long time and with tolerably good functional activity.

If you wish the climate to do some physical mending up, you must bring along your anatomy before this or that part is irretrievably ruined. Because the climate cannot replace a departed lung or degenerated kidney, do not vote it down as a fraud, as there is as much of a limit to the remedial powers of nature as there are natural limits to the mending ability of an ordinary cobbler. When both uppers and bottoms are so badly demoralized that no further patching will hold together, not even the King's cobbler can mend the shoe. Man is but an animated piece of

mechanism at the best, made up of levers, valves, pipes and waste-pipes, with stills and retorts; all these are interdependent. And as diseases affected by climate, or for whose relief climatic aid is sought, generally attack either our bellows or lungs, our retorts or stills and depurating machines, one should not delay too long the seeking of that change of climate that may benefit him. If ever there was any truth in the saying that a stitch in time saves nine, it is in these cases.

In the weather tables we have given samples of extreme months taken from the last twelve months. The tables will speak for themselves. Many will not be any wiser after perusing these tables, as they will be in a quandary as to what is either morbific or beneficial physically in weather; they must accept the bare fact that it is the peculiarity of the region to be healthful, and be content, as health depends not so much on this or that amount of rain or of moisture, or their absence, nor on so much or so much less heat, wind, cold, or so much of this or that meteorological factor, as it does on their peculiar admixture conjoined to certain peculiarities of geographical formation, the absence of any of which might give an entirely different result.

One thing is very evident: the tables show a most agreeable climate in summer, with a low temperature once in every twenty-four hours, and a pleasant winter with never any disagreeable cold.

Cool summers and warm winters favor comfort, health, and long life.

The treatise is necessarily short and condensed, and merely touches on some points here and there, but I believe it will be found adapted to the purpose for which it intended.

P. C. REMONDINO, M. D.

San Diego, Cal., August 31, 1893.

CHAPTER I.

THE ODDEST CORNER OF THE UNITED STATES.

Southern California is a land of climates. It is also a land of surprises and counter conditions; as a comprehensive corner of the earth it stands in many respects without a parallel; it is really, as it has been termed by Charles Dudley Warner, a most unique corner or segment. Within its borders are congregated parts of the wilds and wastes of Northern Africa as well as portions of the sunny shores of Southern Europe; the plains that border the Po, the foot-hills of the Appenines, and the valleys of Switzerland, have their counterparts scattered throughout its interior; whilst the Scottish highlands and the steppes of Tartary find their analogues in many of its localities. The topography and physical geography of the region presents such extreme conditions, that the most rabid admirer of variety and extremes will here find the Eden of his wildest imaginings. The highest mountain cone and the lowest depression below sea-level that exist in the United States are here found within sight of each other; whilst the traveler may sit by running brooks of sparkling waters, among ferns and flowers and great branched shade-trees, and gaze on a desert as hot and as arid as that of the Sahel or Sahara; from a region of apple orchards and of cherries he can gaze to the south and east

and see the wild whirlwinds of hot sands on the Colorado desert that are only equaled by the sand storms of the African. Or, from a region of fierce storms and wild winds, where even the live oaks have to pay tribute to the storm-king by parting with their branches, he may gaze to the southwest, where, between him and the visible ocean, lies a strip of land that knows neither wild storms or cyclones, and where thunder and lightning are so practically unknown that the inhabitants know no storm precautions or lightning-rods. Here are also to be found the greatest daily as well as the smallest annual rainfalls in the United States.

A land of such varied topography and of such a variety of physical conditions, must of necessity show as varied a condition of its flora and fauna. A writer in a late medical journal, struck with this bringing together of the products of so many regions, thus voices his astonishment:

"Southern California, strictly speaking, does not belong to America, says a writer who has seen considerable of the world. It is rather a chip split off by some mighty cataclysm from Asia, floated across the Pacific, and welded to this continent. It is outré, and nearly everything in it is exotic. Being so, it welcomes exotics from nearly every clime. It came over here bare and naked. Sage-brush seed and some howling coyotes dropped down upon it from the plains of the Rockies and quickly took vigorous hold

and became quasi-indigenous. The seeds of the sycamores apparently came with it from beyond the seas, for they are rather oriental than occidental. The sequoias, too, took root long before the earth got sick and began to vomit up mountains. I have no theories about the live oaks; they may possibly have grown from acorns spilt from Colorado's gripsack. Its yucca palms and its poppies are its own. Nearly everything else has been borrowed from other lands. The botanist or the naturalist can trace them all to some original nursery. The one great characteristic of the land is its hospitality. Being a stranger itself, it welcomes strangers. It opens its arms and warmly receives anything and everything native to other lands, and at once cuddles them to its bosom, making them its own."

The oats of Scottish Sutherland and the wheat of Northern Russia are found domesticated side by side with the banana of Central America or the fig and the olive of Palestine. The fruits of Vermont thrive alongside of the fruits peculiar to Mexico. Between these extremes may be found every variety of fruits; the region has adopted all. To one living in the temperate regions this is not altogether incomprehensible—although in nearly all temperate localities, as is well known, it would be next to useless to attempt the outdoor cultivation of a cactus, to say nothing of oranges, guavas, bananas, or lemons; but to one living in and accustomed to the coffee lands

of Southern Mexico, where they must import their flour and potatoes and where our northern fruits are an impossibility either as a production or as an importation, this region offers in its extreme variety of productions the greatest cause for wonderment.

The animal productions of this portion of the Pacific Coast are fully as surprising as those of the vegetable kingdom. The Indians of Southern California—be it on seashore, foot-hill, mountain, or desert (for the desert is peopled by the desert tribes)—present very striking peculiarities when contrasted with those of the Mississippi or Missouri valleys, in that they have been the largest-chested and most athletic of the North American Indians, and in that—even among those of the seacoast—they offer the only examples corresponding to those proverbially deep-chested natives that are found in the highlands of Peru and of Chili. They have, further, been among the longest-lived of the North American Indians, another peculiarity that likens the seashore Indian of Southern California to the South American Indian dwelling several thousand feet above the sea, among the mountains of Peru, where there is undoubtedly to be found the longest-lived race in South America. Among the whites or Europeans—descendants of the early Spaniards who accompanied the early missionaries in some military or civil capacity—the climates of the region have been favorable, and the remarks that have been made by many observers as to the

effect of the American climates upon the Anglo-Saxon or Latin races are altogether inapplicable in Southern California, as the races have lost neither in adipose, stature, health, longevity, or fecundity by their transplantation to Southern California, while such deterioration has befallen the Europeans who have peopled the regions from the Atlantic to the foot of the Rockies. Most of the families originally coming here have more than held their own, being largely assisted in this by the pastoral and domestic habits of the early Californians, which favor both health and long life as well as the production of large families. The families wherein there has been a more or less mixing of native blood, cannot be said to have fared as well, but even here there has not followed that same extent of physical, mental, and moral degeneracy which the writer has observed to follow the same mixing of European and Indian races in the majority of cases elsewhere. That the climate has been a large and potent factor in these better results in California, there can be no reasonable doubt.

One great factor of Southern Cnlifornia's peculiar climate is the character of the adjacent ocean, where a cold current of arctic waters flows south by east in a stream some three hundred miles in width. In these waters are to be found nearly all the forms of animal life that belong to the latitude of Behring Sea. Whales, sea-lions, sea-otters, and common seals, besides the porpoises and other sea mammals, abound in

the waters off the coasts of both Southern and Lower California as far as the Tropic of Cancer. Immediately off the Southern California coast, by a strange coincidence, are found in great abundance, in their proper season, the two favorite fish that make Bass's Straits their home, namely, the barracouta and the bonito, where they are known by the same name as they are in either Santa Barbara or San Diego. Both of these fish are caught in much the same way: in Southern California waters a swiftly sailing boat tows a number of lines astern, whose hooks are simply ornamented with a piece of white muslin cloth. (In Australia the hooks are trimmed with a flowing piece of scarlet goods of any texture, or a red feather.)

The barracouta of our coast is exceptionally fine eating, its flesh is white and delicate, and the writer has never known of its partaking of the poisonous characteristics of the West Indian variety of the same fish, nor is its meat as coarse or as hard as that found on the South African coast or in the South Atlantic at St. Helena, where it is known as "snook." The California barracouta is very much like the pike, only somewhat larger, and longer in proportion to its thickness; it is about three feet in length, and one line will often haul up fifteen or twenty on a short trip.

The bonito is here more familiarly known as the Spanish mackerel; it is the *Thynnus Pellamys*, and the skipjack of the Australian sailors. In the consistence of its flesh and in its flavor it greatly resembles the

Mediterranean tunny, to which it is closely related. On this coast these members of the mackerel family furnish a fine article of diet; like to the barracouta, they are never poisonous, a peculiarity which distinguishes them from the same kinds of fish elsewhere, probably due to the constant and equable coldness of our ocean waters and the diet for these fish which they contain.

Speaking of the, at times, irritating qualities of a fish diet, it may here be mentioned that we have never seen any of the injurious effects observed elsewhere from the eating of mussels. Mussels are here found in great abundance, and of two varieties—a large and fat and a smaller and lean mussel; of these the smaller is by far the better eating and of superior flavor. Of the large variety, half a dozen are often sufficient for a meal.

The peculiar conditions of the Southern California ocean waters as regards their influence or tendency to sustain a varied and seemingly incompatible assortment of animal life belonging to various and far separated latitudes, is well exemplified by the following from the pen of the naturalist, Professor C. R. Orcutt, editor of the *West American Scientist:* "San Diego probably stands the first on the list in the number of recorded forms of marine life. The San Diego fauna possess additional advantage, however, in not only having a fair admixture of northern types, but also in yielding a large number of forms belonging to

the warmer waters of the southward." Out at sea very large sea-turtles are to be seen—some having been caught whose carapace has measured over five feet in length. Of the smaller sea-turtles, weighing from fifty to sixty pounds, the hotels and restaurants are supplied with a sufficient amount at nearly all seasons.

Turning from the sea to the land, we find an equal variety of animal life. The bear, deer, hare, and rabbit were originally as plentiful, especially the two former, as they once were in Wisconsin; the California lion and the lynx and wildcat are still sufficiently common, and the rabbits more than sufficiently so. Of birds, the quail, wild pigeon, duck, goose, and brant offer the best hunting. Bird life is abundant, and trees are generally soon peopled with chirping songsters. Lovers of taxidermic treasures find in our herons, owls, quails, and many varieties of ducks a large number of beautiful trophies.

CHAPTER II.

SHALL I GO TO CALIFORNIA, AND WHAT SHOULD I DO WHEN THERE?

Is the climate all that could be desired? That greatly depends on the nature and disposition, as well as upon the physical condition, of the individual. A perfectly well man, at peace with himself and with all mankind, will, as a rule, be delighted with the climate. Here he can sleep in-doors or out-of-doors for nearly the whole year. He can live in a canvas house or lead a camper's life; he can be up early or late without incurring any danger, and he can bask in the sunshine and inhale a cool breeze for the greater part of the year. Point-of-compass exposure for himself is a matter of no consideration, and he can occupy any room or any kind of a house.

With the invalid it is quite otherwise. He has to undergo a radical change, and wants that change quickly; he expects too much, and is sure to be disappointed; he takes no account of the demoralized condition of his blood-making powers, nor of the wrecked condition of much of his internal anatomy, the work perhaps of years; he is too apt to look upon the most serious and most slowly-to-be-recovered-from conditions as something as easily to be shed as the dust and weariness of body consequent upon a railroad journey disappearing in a warm bath.

We have seen men with a softening lung, or with a hepatized lung containing a large abscess cavity, land here, and, before the week was out, begin to rail at the climate because their fever, expectoration, or shortness of breath had not entirely disappeared. In one week they expect to decide whether the climate agrees with them or not. Before having become accustomed to a sea-level atmosphere, or in any way acclimated to an ocean air, or before having fully recovered from the fatigue of a long journey and all its constipating, cramping, and dietetic tribulations, they ascribe all their want of improvement to the climate, and without further ado many begin a series of moves from the sea-shore inland, then up into the elevations—you can have varying elevations in Southern California, from sea-level to nine thousand feet up; then they come back to the foot-hills and bob from one place to another, the god of health leading them on as wild and as fruitless a chase as the fickle goddess of fortune leads the majority of well men. Such work will not do; the invalid—especially the victim of the results of some acute pulmonary disease—cannot afford such constant changes and upheavals, to say nothing of the fatigue.

Whilst such campaigning may benefit a case of incipient tuberculosis or a simple case of hypochondriasis, it oftentimes removes all possible chances of recovery from the victim of consumption who has passed the first stage, or from those who have had a

pneumonia with an incomplete recovery, or those who have a chronic form of the disease or some chronic pleuritic trouble. All such cases require rest quite as much if not more than climate; the laity, as a class, have some very vague and insane ideas about the benefits to be derived from exercise, and the majority cannot understand that many cases of pulmonary disease require as absolute a rest as a broken rib or a gunshot wound of the chest. We well remember hearing some of the ever-ready-with-advice laity telling a patient with valvular insufficiency due to degeneration and dilatation of the heart—the patient then sitting gasping, with dropsical legs, and expectorating blood from simple passive congestion, and unable to undergo the least exertion—that all he needed was to take a gun and go roaming over the hills; want of exercise was all that ailed him. The pulmonary invalid will find plenty of such advice; he will be told that long walks and hill-climbing will greatly help him; others will advise him to take a gun and chase the festive rabbit or the quail, or to spade up a garden patch—all of which would often be as sensible as to advise a man with a broken collar-bone to pitch for a base-ball nine.

From our experience with invalids and the demoralized and battered-up condition in which many reach their final or objective destination, we have often wished that we could have had the full guidance of their doings from the moment they decided to leave

home. We have also often felt that, considering the great and rapidly increasing number of invalids who daily follow Horace Greeley's advice, the railroads might adopt a little more enlightened method for their transportation. An invalid or a convalescent, or one far advanced in consumption—and too many of the latter class travel westward in a vain and useless hunt for health—requires more fresh air than at any other time. The air of his car requires very frequent renovation, and should be maintained as much as possible at a uniform degree of temperature. Cars intended for the use of invalids should not have any fixed upholstery, and they should be so arranged that at the end of each journey their interiors could be treated either to fumigation, steaming, or superheated dry air, so as to effectually destroy all disease germs.

An invalid on starting from home should choose the route that will the soonest land him at his destination. He should, if possible, take a line upon which are run dining-cars. If dining-cars are not among the possibilities, he should be well provided with a lunch basket, and avoid too far apart meals at unseasonable hours, or subsisting on hard-boiled eggs, or on sandwiches made of insufficiently cooked ham or of canned corned beef. He should provide himself with some small, well baked loaves of bread made from whole-wheat flour, a small jar of butter, some canned peaches, a couple of roasted chickens, and some vials of such beef juices or extracts as can in

an emergency be used with water at ordinary temperature. There is a truffled *purеè de foie gras*, put up in a very small oblong can, that is neither too rich nor indigestible (the can opens with a key that turns back the entire top) which makes an excellent sandwich material, much more juicy and palatable than deviled ham, and not so heavy or heating as the latter. A small alcohol-lamp and a bottle or flask of alcohol, some cans of unsweetened condensed milk, and a small canister of tea, with such fresh fruits and occasional meals as may be reached in time, will enable the invalid to get through the dietary difficulties of the journey.

Whilst traveling, one is rather more apt to over-eat than to under-eat; invalids need to particularly watch that they do not overdo it. Over-eating, and the almost unavoidable constipation consequent upon traveling, make an unhealthy combination; it is to avoid the latter difficulty that we advise the use of canned peaches.

Another thing that the invalid must avoid is the inordinate use of ice-water as a drink; we do not approve of ice-water at any time, and especially disapprove of it whilst traveling. It would be far better if the invalid were supplied with a Chinese padded teapot-basket with its little kettle full of the weak tepid tea so much used by Chinamen everywhere.

The invalid should make it a rule neither to drink nor to eat for mere pastime; eating for recreation is

poor employment, and the temporary plethora or subsequent diarrhœa that such over-eating tends to produce is sufficiently injurious to a well man, to say nothing of the incalculable injury it may cause to an invalid. In some cases this over-eating will induce diarrhœa, and in others a dangerous and obstinate condition of constipation; we have seen fatal exhaustion follow, in either case, as a consequence of the subsequently induced diseased conditions—so that in this matter of dieting whilst traveling the invalid cannot be too careful.

He should be further provided with a vial of soda-mint tablets and a small vial of either pepsin tablets or pepsin compound pills. A small vial of citric acid is also very desirable when at any time the water supplied is too alkaline.

A small substantial woolen lap-robe or rug should be in the outfit. Keeping the legs warm in case of being chilly, and having a little extra covering for the berth when crossing the colder mountains, are points that should be looked after. A small light cap that can be drawn well down over the head and used at night is also a very desirable adjunct to the outfit.

The lower berth of a car should always be chosen; the upper berths are drafty, at times insufferably hot. In a lower berth the head can be arranged towards the engine, and the window at the foot can be left open and the screen adjusted; with the aid of the curtain all drafts can be avoided, and the occupant

can then enjoy a well ventilated berth. Sleeping-cars are too apt to be overheated—in fact, we have more than once seen a whole car of people made sick by this careless overheating, so that it stands well in hand for the traveler to be able to regulate the ventilation and the temperature of his own berth through the window. To be able to do this he must sleep with his head toward the engine; a piece of coarse flannel pinned over the screen will filter the incoming air and free it of all dirt, soot, or smoke; to this end the traveler should supply himself with half a yard of coarse flannel and some stout pins. These are all apparently trifles, but they are in reality matters of great importance to an invalid; we have seen too many well men made sick by disregarding these small matters, not to fully realize their import to the weak or the sick.

Each sleeping car—especially where the porter is a plethoric and healthy sleeper—should be provided with an electric temperature-alarm—such as we have seen on incubators—so that whenever the temperature passed a certain degree the porter could at once be notified. Sleeping in a cold car, but with plenty of covering and on a good mattress, could not possibly result in any harm. No one sleeps in a heated room at home, and there are no particular reasons why sleeping-cars should be heated as they are throughout the night. This is a matter that railroad sanitarians should seriously consider and attempt some sensible improvement upon.

When you arrive at your destination, don't undertake to get well all at once. If you are at the seashore at Santa Barbara or at San Diego, don't try to make sea-bathing do that which can only be done by fresh air and cod-liver oil. The first thing you want to attend to is to be calm and collected. Look to the condition of your intestinal canal. If you have not had free evacuations, use an enema. Again we say, be calm. Don't go at it as if it were a very disagreeable duty to be got through with as soon as possible. Use a little glycerin and sweet oil first, and then let the warm water meander in slowly. All persons should have a syringe of some kind when traveling; when one is needed, it is more badly needed than the Arkansaw man's revolver, and nothing will take its place. In using an enema, don't sit down on your heels like a Congo chief receiving an embassy from Queen Victoria; place yourself on a bed or lounge, and elevate your hips, having hung up the syringe—if one of the bag variety, which, by the way, are the most serviceable, then, with the shut-off in your hand, you are master of the situation. Take the enema slowly, and don't hurry. Nature will dictate what to do next.

Invalids are too apt to want to see the whole town and vicinity at once—wherever they go. Again we say, be calm. You have come on a long journey, and are in more need of rest than you imagine. Don't act as if you were William the Conqueror, just landed, and must either fight the battle of Hastings

or be driven into the sea. The town will wait just where it is until you are rested and until you can look at it by installments. It will be there next month as well as next week. Instead of looking to see how idiotically the projectors platted out the town or how sensibly it has been built up, devote your engineering and architectural skill to watching that your landlord does not smuggle you into a north room or one that is unventilated or musty. See that your bed is well aired and that the room is ventilated —not through the hall transom, but through a window and with outside air. California beds are not apt to be damp, neither are the rooms—unless the proprietor has gone to excessive pains to make them so; in this regard one need not worry, as he would were he in the south of Europe. See that you have a south room, and that the room is well aired.

The next thing to be done is to try and live as you did at home—provided you there lived like a sensible being. Don't imagine because you have come to California that you must eat nothing but fruits, and these at all times and at unseasonable hours. Don't fill up on oranges because their juice is healthy, nor on lemon-juice because it is antiscorbutic, nor on grapes because of the grape cures, nor do you go and fill up on figs because they are laxative, nor on berries or anything else simply because they taste good. Regularity and moderation are the watchwords of health; live as if you were back in Vermont, Pennsyl-

vania, or Minnesota—do nothing more or less. If you are a consumptive, or in danger of becoming so, devote your digestion to a regular diet and to fats. The fat of beef or of mutton, or cod-liver oil, is what you want in such cases.

Many poor, emaciated and dyspeptic invalids gormandize on oatmeal gruel swimming in milk and floating butter. Whilst Carlyle may have been an oatmeal epicure, and lived on oatmeal, and even have evolved his Frederick the Great and his French Revolution out of oatmeal inspiration, we must not forget that Carlyle was neither a consumptive nor a really dangerously sick or badly demoralized man in his general organism, as otherwise he would hardly have lived to the good old age that he did. Besides, he had the oatmeal constitution and lived in the oatmeal atmosphere of the Scotch Highlands, and passed most of his time on the back of a shaggy Scotch pony in the outer and very moist Scottish air. With the average American, who is not a Carlyle either mentally or physically, nor immersed in a Scotch atmosphere, oatmeal does not act so kindly; it tends rather to undergo a gaseous fermentation that fills and bloats its unhappy victim with a most uncomfortable and *anti-peptic* element. The more bloated the unfortunate oatmeal feeder becomes, the more bass-drummy and resonant as well as globular his abdomen, the more visible his ribs, and the more spindling and attenuated his legs—the more he seems to believe that he must avoid all other foods

and stick religiously to oatmeal. We have no objection to oatmeal if the person will gradually educate himself to its use, eat it raw, and well masticate it before he swallows it; but we are decidedly opposed to the usual way it is bolted down. Oatmeal was not intended to be eaten in that way.

We have more than once seen a manifest improvement in such cases by interdicting all mushes and substituting a mutton-chop with a little lime-juice and a slice of stale or well seasoned brown bread. That oatmeal is not digesting or agreeing with the individual can easily be ascertained by the tympanitic condition of the abdomen, as well as by the flatulent character of the stools. In such cases it does not digest, and not digesting it cannot be assimilated or nourishing—it cannot, therefore, be anything else but an injury, and it should be strictly omitted.

A person coming to Southern California should supply himself or herself with just such clothes for continuous wear as would be required at home in a constant temperature of 60° F.

The region he is about to visit or live in, although far to the south and possessing a dry warm soil, is under the influence of the sweep of continuous cool westerly winds in the day and a cool mountain air at night, which, in the shade, makes the temperature decidedly cool, and cool when riding in a covered carriage against the wind. Under most circumstances you will require about such weight and texture of

cloth for garments as would be demanded by April or early May weather in the Northwest or in New England.

Linen ducking suits are here useless, and the only goods to be worn are woolen fabrics. Do not take up any trunk space with summer clothes—such as are worn in the East—as here you cannot wear them. Neither need you encumber yourself with light summer underwear, as you will find it too light for comfort when here. You will never find the Southern coast sufficiently hot for a sunshade or for such wearing apparel. The ocean winds and the mountain air are at all times so cold that you will require woolen clothes in the day and a good blanket over the bed at night. The same rule applies to footwear: your shoes must here have good substantial soles. The pavements on the south or shady side of the street—especially if made of artificial stone—are, as a rule, cold; standing on such pavements with thin-soled shoes is nearly as dangerous an experiment here as it would be elsewhere. It is true you will here not be so subject to pneumonia or any other violent attack, but cold feet will do you no good. Always wear good shoes; we would even advise cork intersoles. This advice is more particularly intended for invalids, but it can also be taken with profit by the well who wish to remain so.

In common with all localities in southerly latitudes, where the period of twilight is one of excessive

briefness and of sudden cooling, the hour of sunset must be guarded against by those unaccustomed to this sudden abstraction of solar heat in an otherwise proverbially low temperature. From personal observation, however, the writer does not find the actual or apparent change of temperature to be so great here as it is on the southerly European coasts bordering on the Mediterranean Sea. Persons whose health depends on the strictest care and the least atmospheric disturbance, should make it a point not to be out or exposed at this period—at least, not until they have become physically familiar with and insensitive to our constant low temperature—as with us, constant or transient shade is always cool, all of our immediate heat being purely and directly from solar sources. Later in the evening the ground heat and the stored heat given out by pavements and brick or stone buildings make the air pleasantly warm; but the hour of the sun's decline—although only affecting the thermometrical reading one degree or even less—causes the sensation of great chilling to strangers, and especially to invalids, and they should guard against it. It is there—this chilling air—and it is useless to grumble or find fault with its presence or to deny its existence. You simply must recognize its existence and guard against it.

There is much that should be said to those who accompany pulmonary invalids to this coast: They should not forget that tuberculosis is infectious, and

they should not sleep in the same room with the invalid, or ventilate the room of the invalid through the one they occupy. They should particularly guard against all infection through the sputa. All invalids of this class should be provided with the destructible paper cuspidor, and this should be always covered with a slip of paper and then cremated. Many invalids ignorantly doom all of their family to die of their disease through carelessness in these matters. Children should never sleep where they breathe the air respired by such invalids; neither should food or drink which has been partaken of or handled by such invalids, or table utensils, napkin, or towel used or touched by them, be given to other persons to be used in a like manner. The intestinal canal is a port of entry for the germ of this disease, and the well cannot exercise too much care in looking to their own protection.

In regard to the treatment of consumption and of most pulmonary ailments—except such as may require surgical interference and wherein only a surgical operation can give any relief or any curative prospects—rational medicine is in strict accord with all that can be accomplished by climatic cures. The laity have, as a rule, many erroneous ideas respecting the qualities of the air that we breathe, and as vague ideas as to what constitutes its purity or its impurities. London and many of the larger manufacturing cities of England, with all their smoky fogs and ap-

parent air-impurities, can lay but little actual disease to the condition of their outer air. It is, as a rule, the air of the shop, factory, store, office, or home, that is the real evil or morbific factor. We are not now speaking of the relation of any particular trade or occupation to consumption, nor of any hereditary tendencies that may predispose one to this disease. It is a recognized fact that breathing foul air through living in unventilated apartments, or through what may be called insufficient or debilitated breathing movements, tends in many to induce or develop a phthisical or consumptive condition. In others, it may be depending upon the result of some serious and debilitating sickness which has severely impaired the powers of resistance. In either of the above, the main factorial element in the eventually engendered consumptive condition is the circumscribed local climate which has been artificially constructed and in which the wrecked and demoralized being has existed.

The medicine of the present—as well as the coming medicine—is in a large sense a medicine of prevention, and in these particular cases it is fully recognized that the medicine of the materia medica can only be at most but an adjuvant, and that the main reliance must be placed in the surrounding local climate. As an example we will take the case of a man whose occupation necessitates confinement in an office. He begins to lose his appetite and weight, his sleep is restless, and he has attacks of wandering

fever; he may even have a cough. He takes a vacation, passes a few days in the open air, and all his ill feelings leave him, and he is soon his old self again; he returns to his occupation, and in a few days he has relapsed into his former physical discomfort. It is sheer folly for this man to waste his time and money in trying to regain or to retain his health through any inhalations, dosings, or inunctions; what he needs and must have is fresh air. If the general outdoor climate of his locality is such as will allow of a better ventilation of the office, he may, by appropriate gymnastics and proper tonic medication, so arrange it that he can continue his occupation in safety, otherwise he must give it up. Fresh air is here the prime factor to health and life.

Another important factor is light. In this regard human beings do not differ much from plant life—they must have light, and the air that surrounds them is the better for the plant or for animal life by being fully exposed to sunlight. When the woman places her drooping or sickly plants in the air and sun, she is simply treating them to a climatic cure. She knows better than to expect that sulphur-sprinkling, a more generous supply of plant-food, or water will do what alone can be accomplished by sunlight and fresh air. So with the man with failing health: he must not forget that light is an important element to animal as to plant life, and that no medicines can either partially or fully replace it. Fresh air and sunlight will, to many,

restore that health which their absence too often has caused to be lost.

Some two years ago I attended two brothers—both consumptives. One rainy day, during my daily visit I found the two brothers in their closed room, windows well closed, and a large kerosene stove burning full tilt. The air of the room was necessarily very foul and much overheated. It was then near tea time, and they had been in that foul atmosphere all day. On my observing that they had made a mistake in coming to California, they both asked if I did not consider this climate a proper one for their cases. They could hardly comprehend what I meant by saying that there was no need of their coming to California to overheat a room and breathe as foul an air as they could have done in their Pennsylvanian home, as the local climate of the room was in all probability just such a local room-climate as they had lived in at home, and the one which had ruined both. Neither could they understand that they would have been immensely better off out in the street, with good rubbers, an overcoat, and under an umbrella, even in the rain, than to remain in that close room. They had simply done that which many others continually do—they had carefully manufactured for themselves just such a climate as that they had run away from—and that at a great trouble and expense. The Germans, Danes, Swedes, and Russians—or the majority of them—do precisely the same when they go to the

south of Europe for climatic treatment: they haul in a big box-stove, get up a roaring fire, caulk up every crevice that may admit a breath of the outer air, with oakum or strips of cloth, and breathe precisely the same air that they had on the Elbe, the Baltic, or the Volga. By what process of reasoning or of logic they have led themselves to believe in the existence of physical laws by which the outer climate can by any possibility overcome the inner, or how they expect that it is to affect them, or how they can settle down in the comfortable assurance that they are in another climate than the one in which they became ill and from which they thought themselves escaped, is something beyond comprehension.

During the late war there was in one of the companies of the 51st Illinois a lachrymose, listless, putty-backboned individual, who was of no earthly account. We have seen many such in different regiments, and often wondered how they managed always to escape crushing, being run over, capture, or shooting. They really never knew whether they were going backwards or forwards, or where they were, or why they were there. On the pay-roll, opposite to this bold warrior's name, in the space allotted to "remarks," the Colonel was wont to write, "And of such is the kingdom of heaven." Whenever we see a man cross the continent for a change of climate, and then shut himself up in a close room so that the climate can't get at him, we always think of the poor lachrymose indi-

vidual, and that "of such is the kingdom of heaven," as such people were not intended nor educated—either by instinct or science—to remain long on this earth. The mind of the laity is not, as a rule, of a very analytical turn in these matters. It would be better for them if it were otherwise. We purposely dwell upon these points *in extenso*, as it is absolutely necessary that they should have some decided and well-defined understanding on the subject if they are to comprehend what constitutes climatic treatment. The proverbial colt owned by Mr. Thompson of Kentucky, which was wont to wade into the creek so as to keep out of the rain, was not much more demented than those who cannot understand that the indoor climate is a purely artificial one, and that it may, in smell, foulness, and in temperature, be carried in its entirety into most localities in the temperate zone.

The main remedial faculty in the Southern Californian climate consists in the fact that it allows the greatest facility for an out-of-door life and for the greatest freedom in ventilation, conjoined to the greatest possible amount of sunshine. By this we do not mean that the patient should expose himself to draughts or bake in the sun, as either process is injurious, but we mean that he should put into play all that is implied in the air cure, as generally applied to the treatment of consumptives. To neglect this is to neglect the most important element in

that which is expected to help the patient when he is afflicted with consumption.

The Labrador fisherman, as long as he is poor and lives in his well ventilated hut, or is compelled by the nomadic character of his occupation and continually shifting camp to occupy a shelter of brushes, retains his health. If, in an unlucky turn, he acquires a competence and builds himself a good house, or hires out to some company that well houses the fishermen—then consumption begins to play havoc among the hale and robust Labradorians. The most dangerous gauntlet that the American Indian has to run in becoming a civilized being and in adopting our habits, is found—next to that of imbibing daily a certain amount of fire-water—when he is to give up the tent or hut of his forefathers and incarcerate himself in a modern house with its well constructed and protecting windows and doors. An evil spirit then repays him for his desertion of his tribal habits and for wishing to improve on their old-time habitations; his children become sickly, and a cough takes possession of the older people.

An Indian agent was surprised to find an Indian family, for whom he had built a substantial house, and whom he had left well installed, living in a tent at a safe distance from the house, which was only tenanted by the plows, harrows, and other farming utensils. On an inquiry he learned that the house had been invaded by a bad spirit which had caused

them to spit blood, and that, seeing the hopelessness of a struggle with such unseen powers, they had decamped and left him in full possession of the field —giving him the hardwood and iron implements to work out his spite upon. Since they had moved out they were all right.

The African maid, brought from her brush hut in the woods or hills of the interior to occupy a well appointed apartment in some harem in one of the towns, usually falls a victim to early consumption; just as the Arab captive, taken to France and imprisoned, does not long survive his change of manner of habitation. Monkeys brought from the south die from consumption due to too close housing.

All of the above examples are in keeping with the well known tendency, that the more confining the occupation and the more sudden is the change made from an out-of-door life to a confining one, the greater are the risks from consumption. To regain health you must take the back track.

One cause of consumption among many of our people is to be found in the fact that too many live an active out-of-door life during the summer, which they leave by a too rapid transition for one of confinement and of close air and of inactivity, with the advent of winter. This is not uncommon in the Eastern and Western, as well as in the Middle States, where the climate of winter creates an enforced rest from the occupations of summer, and where many

seek indoor work for the winter season. Young men working at farm labor in the summer, and taking a school in the winter—although robust—run more risks than they are aware of in this regard.

The laical mind, in its utter disregard for all hygiene as well as for all that pertains to preventive medicine, always waits until the mischief is done and then flies to curative remedies and methods—legitimate, empirical, and quackish—reasonable and unreasonable, in its vain endeavors to escape the doom it has so foolishly braved. It should learn from the instinctive treatment which it accords to the dumb brutes or to those other beings of the organic world, when it finds them drooping and sickly, what it should do for its own tenement when likewise affected. Be it a bird, a monkey, or some other live pet, or a favorite plant, it dawns upon us instinctively that it is fresh air that it needs, and somehow—when it is the case of some small pet or of a plant—we know as instinctively that nothing else will do. Why do we allow ourselves to be deceived in our own regard, while we dose ourselves with everything and rub our sides with all kinds of nauseous stuffs, from goose-grease to kerosene? Somehow, we have come, in some erroneous and incomprehensive way, to look upon fresh air as an enemy, as if it were in the outer air that the microbes of disease were swarming. We look upon an air of a low temperature as deadly for fear of "taking cold," and upon a foggy or a rainy

air as dangerous, utterly forgetful or ignorant of the fact that it is our bodies which contribute all of what there is of impure or harmful—except in the case of paludal or other vegetable miasma—and that of all, the most dangerous of these are those exhalations which emanate from our own lungs and skin. We seem to ignore the fact that these emanations, under the chemical and diffusing action of the sunlight and the outer air, tend to become harmless. We fly from pure air and health, to huddle with foul air and disease. This is unfortunately the result of a semi-civilization and want of proper education, and from this—in a great part—come scrofula, consumption, and many other of the physical, mental, and moral degenerations that afflict our European branch of the Caucasian race.

We have here outlined what constitutes the modern intelligent treatment of consumption. It is not a question of medicated teas, of pills, nor of syrups, elixirs, or cordials "to heal the lungs." If you have an empyema or an abscess of the lung, resulting from a pleurisy, an injury, or a pneumonia, you need surgical treatment; but if you are—as in nine-tenths of the cases that we have seen—a pulmonary, renal, or a general invalid from a mere disregard of hygiene and the general laws that govern the health of organized beings, you need most essentially the air treatment. In other words, you must live, more than you would have otherwise been obliged to

have lived, in the open air; ventilation is now not only a matter of comfort, ease, and luxury, but is to be for you a medicine and a stern necessity.

Here it is where the equable temperature, long days and long hours of sunshine, dry soils and shifting air of Southern California offer to you advantages to be had nowhere else. Here the "air cure" can be carried out to its utmost degree of perfection, and it is here where lost physical ground can be the most easily recovered.

You will need other treatment. An irritating cough may need alleviating; some complication may need to be set aside; the prolongation of your ailment and some inherited tendency may have established a condition of chronicity that nothing but intelligent medical treatment may remove; or some intercurrent constitutional diathesis or inherited or acquired body habit may obstruct and complicate things very seriously, all requiring the most skillful diagnosis as well as the most intelligent treatment; but you may rest assured that it is all in vain unless the first cause of your difficulties is well attended to. Without the supplemental, or rather primarily necessary fresh air, your chances are seriously hampered. In Switzerland as well as in the Canadas or in the upper and more northerly parts of the Northwest, where so many consumptives have wintered, or in Colorado and New Mexico, where so many have regained health, it is the open-air treatment that is the effica-

cious remedy. At Davos the invalids sit in reclining chairs, well wrapped in rugs, out on porches in the open and very cold air. In Canada they clothe warmly and spend much of the time out of doors. In California this is all done in midwinter as you would in New York or in Boston in the middle of May.

As to the views set forth above, there are no differences among scientists or climatologists. They are the accepted views of physiologists, pathologists, and sociologists, as well as of the practicing physician. In closing this subject we cannot do better than to reproduce what Dr. Maurice Boulay lately said in the *Journal d' Hygiène Populaire* in connection with the "air treatment:"

"Although the favorable influence of pure air upon persons suffering with phthisis has been recognized in all times, it is only in our day that, thanks to the labors of H. Bennett and of Brehmer, continuous aëration has been developed into a genuine method. The rules of the air-cure should be formulated for the day and for the night.

"During the day, the patient should live in the open air. He should divide his time between exercise and rest; exercise, that is to say, walking, is to occupy short periods; we shall return to this point later. Almost the whole of the day should be devoted to repose. Under these circumstances, remaining in the open air is possible only by taking certain pre-

cautions against inclemency of the weather, such as cold, wind, rain, and against the sunlight itself. The fundamental principle is the following: the patient will recline extended upon a long chair or couch, experience having demonstrated that in this position the repose which is prescribed for him is better observed and low temperatures are better endured. According to the degree of exterior temperature, he will cover himself with a shawl or envelop himself in one or two covertures; if necessary a bottle of warm water will be placed against the feet. To ward off the inconvenience of the wind and of the sun's rays, various devices have been conceived. A very simple means consists in introducing the long chair into a sort of movable sentry-box made of wood, or still better of basket-work, so that the sheltering box can be conveniently placed from time to time against the wind or the sun. Direct exposure to the sun's rays is, in fact, harmful to the phthisical patient: a slight elevation of body heat or even a real febrile movement is sometimes the consequence. There is, however, no objection to allow the sun's rays to warm the feet of the patient, provided that the head and the chest be in the shadow. The same device, modified to suit the circumstances, will also serve as a means of protection against the rain. In special establishments this rôle is performed by galleries or pavilions open to the free air.

"The evening arrived, the patient returns to his

chamber at the moment of sunset, to leave it again only the next morning. The aëration of the bed-chamber, which should take place during the whole of the day, with the windows kept open, may be secured during the night by divers means (casements, perforated window-pane, etc.). The most convenient means, and which gives the best results, consists in leaving the window open as during the day—a screen should be placed between the bed and the window, or, better still, a blind or slat shutter should be lowered in front of the window in order to oppose a current of wind and to resist chilling of the room by radiation. In a chamber thus ventilated, the temperature falls but one to two degrees C. lower than in a closed chamber; besides, the variations of the exterior temperature are felt only slightly in such a chamber. Great oscillations of the mercurial column without, correspond only to silght changes of temperature in the interior. Thus, during one of these recent winters, we proved that in a bed-room without fire, of a phthisical patient treated by continuous aëration, the temperature did not fall below + 5° C., whilst out of doors the thermometer fell to — 7° C. Provided that they are covered as much as necessary according to the season, the patients readily accustom themselves to this nocturnal aëration. It is advisable nevertheless to subject them to the air gradually, by at first opening the window of the adjoining room, then that of their own room, only a little at

first, increasing progressively until at last the window is wide open.

"This treatment can and should be continued from one end of the year to the other, in winter as well and even better than in summer; for it is remarked that patients subjected to aëration better endure great cold, against which they can protect themselves, than great heat, which latter is for them often the source of malaise and sometimes of attacks of dyspnœa or of syncope.

"The effect of living in the free air is at the same time natural and moral. The appetite returns and digestion is better performed: these are the chief phenomena. Everyone knows that air, especially when it is fresh and pure, is the best of aperients. Oppression is replaced by calm, sleep returns, the fever and the sweats disappear little by little; with the appetite comes a renewal of strength which allows of short walks. Bathed with air and light, occupied with viewing the movement and the life of nature, the tuberculous subject is sensible of a regeneration and a reawakening of the pleasure of existence. Accustomed to inclemencies of weather, which provoke accidents so dangerous in the tubercular who are confined in overheated chambers, he is insensible to the effects of chills; even when he respires a glacial air he contracts neither bronchitis nor laryngitis, nor pulmonary congestion, nor pleurisy.

"This method is applicable to all phthisics indis-

criminately; fever is not at all a contra-indication; aëration has furnished unhoped-for results in cases of very rapid progress, and even in those of typhoid form. Combined with super-alimentation, it affords brilliant success in the convalescence from acute tubercular exacerbations.

"The mode of action of the air-cure is complex; it appears to be double. Aëration plays an active rôle; it favors nutrition and the vital action. Air and light are as indispensable to animals as to vegetables; the deplorable effects upon both of living in close and dark quarters form the proof thereof; both cease to languish the moment they are returned to the air and the sunlight. But aëration possesses also a passive rôle; it withdraws the individual from the noxious influence of confined air, which is a poisoned air. We know the experiments by which Brown-Séquard and d'Arsonval demonstrated that the noxious properties of air already respired are due not to the want of oxygen, nor to the excess of carbonic acid, but to the organic vapors exhaled at each expiration. These toxic matters, thrown off from our lungs, are bound to return when we respire in a chamber of which the air is not renewed; they then produce in us phenomena of intoxication, just as would be produced by absorption of the poisons which our kidneys or our skin eliminate.

"It is necessary to impose upon phthisics a repose which is at once mental and physical. From the

moment the patient is enlightened concerning the nature of his disease—and this should be done early if he be not timid—he should quit his occupations, his fatigues and his pleasures, in order to make it his business to rest in the open air; life is the stake. He should walk little; rest during his promenades before experiencing fatigue; go to bed early; converse as little as possible, especially while walking. A promenade of an hour in the morning and of two hours in the afternoon is sufficient for a phthisic who has no fever. The patient with fever should rest upon his reclining chair or couch almost the whole day; a morning walk of a half-hour or of an hour is capable of elevating the evening temperature a half-degree, sometimes even a whole degree. All engrossing labor should be avoided; the patient should, so to speak, live a life which is merely vegetative. His means of diversion should weary neither his mind nor his body: they should consist in such things as hearing lectures and music, viewing paintings and drawings, etc.; no dinners in town, no soirées, no theatre parties, etc. "

CHAPTER III.

COST OF LIVING, AND OTHER DETAILS.

Southern California presents to the epicurean the finest markets in the world; the best of meats, poultry, game, and sea-fish, the best of vegetables and all kinds of fruits, are on the shelves, hooks, racks, and stalls of the Los Angeles markets. The cost of living is no higher here than in the East; poultry, butter, and eggs command higher prices, but other articles are fully as cheap, and with the increase of farms these three articles will soon be fully as reasonable. The Pacific Coast cannot compare with the mouths of the James, York, and other large Eastern rivers in the oyster line—our best oysters come from the East—but as to crabs, lobsters, shrimps, and sea-fish, it has as fine flavored stock, and in as great variety, as the York or the James can afford. Fish is very cheap and to be had at all seasons; twenty cents will buy enough fish of the best quality for a meal for a family of six or eight.

Hotels are to be found in every locality—large and commodious, and far ahead of the seeming demand of the localities as to apartments and furnishings. The hotel rates are from 20 to 30 per cent. lower than for like accommodations in the East. Our large hotels are as sumptuous as the Windsor at Montreal, and the table as plentifully and as fastidiously

furnished. Cheaper hotels range from seven to ten dollars per week in their charges. The region is well and abundantly supplied with all classes of lodging-houses and restaurants, where persons can live to their taste and very economically.

Furnished houses and cottages bring from fifteen to one hundred and fifty dollars per month. We have seen a family of four rent a nice cottage, including all necessary furniture, with all the needed linen for bed and dining-room, lamps, a fine upright piano, and a serviceable library, for fifteen dollars per month. Another family of four persons rented a large and handsomely furnished house with all modern conveniences, with fine garden and lawn, for four months for six hundred dollars. We have seen small cottages, well furnished, rent for as low as ten dollars per month.

Room rents are proportionately cheap, although many persons prefer to pay ten or twelve dollars per month for a couple of rooms in a good house and to have no further annoyance. Such parties—generally man and wife—take table board in some private house where meals are given by the week or month. Good table board can be had at from twenty-five to thirty-five dollars per month. There are numerous restaurants where one can limit his dietary to such things as he may wish, and pay accordingly.

There are excellent hospital and sanitarium accommodations in many parts of the region. In Los

Angeles and in San Diego the Sisters of Mercy and Sisters of Charity have commodious establishments, where the invalid may find good board and care. The prices in these establishments vary with the accommodations; in the wards the expense is about seven dollars per week, and in private rooms it is from ten to fourteen dollars. This generally includes ordinary nursing; patients requiring the constant attendance of a nurse are simply charged the extra amount paid to the nurse. Professional nurses are to be found in every large town. In Los Angeles, San Diego, and in Ventura, there are a number of private sanitaria. In most of these establishments patients have the privilege of employing whom they please as physicians; this is the case in those conducted by the Sisters of Mercy.

In speaking of sanitaria, we are reminded that there exist unparalleled opportunities for the employment of idle capital in the perfection of sanitarian establishments. In the Cajon Valley, Dr. Gray, formerly of New York, established the beginnings of a fine sanitarium at Villa Karma, which occupies a beautiful ten-acre tract, well set out in trees and shrubs. The death of its owner in the East during a summer visit has left the place unoccupied. It would make a fine location for a physician with some capital. At Carlsbad there is also a large establishment, with natural water equal to that of the famous springs of the same name in Europe, which could be made equal

to the great establishment at Battle Creek. There are many other like opportunities only awaiting the advent of capital for their development.

We might also mention that invalids can purchase "homes" for the rest of their natural lives by the payment of a stipulated price. The Sisters of Mercy at St. Joseph's Sanitarium—a beautiful location on the highlands overlooking San Diego and on the electric-car road—sell many such homes, which secure to an invalid a good home care and attendance, and freedom from all worries. To an invalid of moderate means this offers a great opportunity, as a comparatively small sum places him beyond the fear of want. Persons in the East with an invalid relative to care for cannot make a better investment nor do their relative a greater kindness than by buying them such a home in this mild and agreeable climate.

Every variety and order of physicians and of specific medication abound in Southern California, and it requires no little discriminating tact not to fall into the hands of the pharisaical Philistine, who here thrives like the giant sequoia and possesses all the required unctuousness, recommendations, and geniality, and who is by no means confined to any particular pathy or ism. Do not entrust yourself to any one doctor simply because he may be a member of your church—he may be the most unprincipled man in the lot. We—that is, the laity—should depart from the practice of employing a man simply because

he is a member of our church, our lodge, or of our set; he should be employed only on account of being a physician. Honest and capable physicians can easily be found in all our communities. Nothing looks sillier than to see a patient go chasing after a Chinese medicine-man for a daily dose of desiccated animal remains, or some other as disagreeable medication, or some other as senseless "ism," in the vain hope that these mysterious mixtures and decoctions will restore him to health. If you really need a physician, employ one who really is a physician; if you do not, then leave medication alone. The owner of a galvanic battery, or the possessor of a few jars of dead spiders or some pots of herbs and powders, is not of necessity any more of a physician than a Chinese gardener is a civil engineer.

Above all things, do not allow every friend and new acquaintance to dose you with any of their infallible nostrums, or drag you off to their favorite doctor. The advice of such is generally bad enough even about matters of diet or exercise, to say nothing of actual medication or recommending a medical man. In this regard, it will be well for the invalid to remember that the positiveness, dogmatism, and assurance of these advisers is always fully commensurate with their degree of ignorance. A really wise and intelligent man will leave you alone or give you guarded advice. The others lack not only wisdom and that experience which makes man skeptical, but

they even lack common sense. Good, skillful, and honest physicians are sufficiently numerous, and they alone should be consulted.

Livery is as cheap here as in the East, and horses may be hired for a stated time daily for a reasonable compensation. Buggy-riding is excellent for those who need passive exercise and who should be out of doors. We remember two invalids—both convalescing from a long and tedious attack of spotted fever—who came from the East, and were daily taken out on a long settee which was placed in a spring express wagon; with an umbrella over this, they daily spent several hours in the open air, and both recovered from the paralysis which the disease had left. One was a physician, and, although he had been brought westward on a cot, he eventually made such a recovery as to be able to resume his practice.

Every church denomination is here well represented, not only by a large society, but by substantial edifices, and the pulpits have for years commanded the services of the best talent. Schools and academies, both free and private, are of the greatest excellence and attached to all considerable communities. Los Angeles has a university and a medical college. Los Angeles, San Diego, Riverside, Pasadena, and San Bernardino have theatres equal to those of Boston in either appointments or elegance. So the Easterner need not feel that he is leaving all refinement behind when he enters Southern California. Public libraries are to be found in all our large communities.

CHAPTER IV.

PECULIARITIES OF THE CLIMATE.

As already observed, Southern California is, especially in relation to the United States, a most decidedly unique combination; this is particularly so as regards climate. Whilst its general topography and physical condition, as well as its fauna and flora—either land or marine—are strange, extreme, and surprising, the general conditions and effects of its varied climate are still greater subjects of wonderment and surprise. Eastern and Western people, or even those coming from the South, cannot divest themselves of the relative ideas regarding climate that their own locality has engendered. Let them understand that the winter mean is 54° F., and they will at once judge, considering the latitude, that the summers must be nearly torrid. It is something that they cannot understand, why a small section of the whole United States, daily passing under the same sun and immersed in the same sea of atmosphere, should of itself enjoy an exceptional immunity from the general physical and meteorological laws that govern the rest; to believe in such an exemption and such immunity is to destroy all our preconceived ideas as well as all our faith in the regularity and stability of physical laws, and to admit at once that nature is fickle and that she has allowed Southern California to tread a path of mete-

orological anarchy denied to the rest of the nation. Experience and long residence soon teaches us, however, that, whatever physical laws may do for the rest of the country, this region has entirely separate laws for itself, and that it cannot be judged by our knowledge of climatic laws elsewhere, as the expectation of results based on such knowledge will here continually disappoint.

As an example of this peculiarity, we will take the effect of great heat on the animal economy. Heat of 100°, 110°, and even 120° F., causes no discomfort in Southern California, and men have worked in that great degree of heat with comfort and without experiencing a particle of the exhaustion that accompanies a like degree of labor in the harvest fields in the average summer heat of either Minnesota or Iowa. The same degree of heat, were it to be experienced in New York, Philadelphia, or Boston, would depopulate those cities in a few days, as even a much less degree of heat will there greatly increase the mortality. We are told, for instance, that in New York City, during the week ending July 6th, 1872, there were 229 more deaths than in the fateful cholera week of 1866; the mean temperature for that week of July in 1872 was 83.97°, but the relative mean humidity for the same period was 75 per cent. Lieutenant W. A. Glassford, of the U. S. Signal Service, after a careful investigation into the different effects of extreme heat on man as exemplified by that extreme of temperature in New

York and the effects of high temperature in Southern California, has ascribed the immunity enjoyed by man in the latter region to the extreme degree of dryness which attends the great heat: a view generally accepted by all observers. My own observations, as well as a careful comparative study of the meteorological tables of the U. S. Signal Service in regard to contemporaneous heat and humidity, fully confirm this view of the subject.

As an example we will give the following occurcence that took place under our observation. On November 3d, of 1890, owing to extensive brush fires to the north and east of town, the thermometer in the shelter of the Government Signal Station registered the very unusual degree of 90° F. soon after noon; at the same time the relative humidity ran down to 10 per cent. This example is typical, as every sudden or unusual rise of temperature is as suddenly and regularly accompanied by a corresponding fall in humidity. There are only two sources for any extreme heat in Southern California. These are: the reversal of the usual wind currents and the domination of a high wind from off either the Mohave or the Colorado desert, constituting what is called a "norther;" or the existence of extensive and widespread forest and brush fires in the mountains or foot-hills. Either of these puts an end to the regular play of the trade-winds from the northwest, and brings on an immediate rise of temperature; but the same

causes, by repelling the only source of our atmospheric moisture, also bring about a condition of such extreme dryness that the air may literally be said to be as if kiln-dried. The inflow of our usual ocean moisture is a physical impossibility under the circumstances, and such occurrences as that which took place in that fearful July week in 1872 in New York, owing to the peculiar combination of great heat and moisture, are in Southern California simply impossibilities.

When we consider the doubts, ignorance, surprise, and even positive and assertive disbelief, that becloud this part of Southern California meteorology, we are led to inquire whether no other region supplies analogous conditions. In the British Colonial Library, volume two, at page 99, in the chapter dealing with the climate of New South Wales, we find the following in regard to the hot winds that there prevail at certain times during the summer:

"These winds (the hot winds from the inland) have never yet been satisfactorily accounted for. They blow from the northwest three or four times every summer, like a strong current of air from a heated furnace, raising the thermometer to 100° in the shade, and 125° when exposed to their influence. But the rise in the thermometer does not indicate the effect of the weather upon the animal frame; the *humidity* of the atmosphere is of far more importance in this respect, for I have felt a much greater degree of oppression in Calcutta with the thermometer at

80° and the atmosphere surcharged with moisture, than in New South Wales when the mercury was at 125° and the air of a parching dryness. Indeed, in the latter country I have ridden fifty miles a day with but slight fatigue, while under the temperature of Bengal I found the slightest motion exhausting."

The above was written by R. Montgomery Martin, F. S. S., some sixty years ago, so that the conditions found in Southern California are not altogether unique. It is only in the United States that immunity from great bodily discomfort during periods of such extreme heat is questioned, as the reverse is the rule in all but California—while the low latitude of Southern California makes it more difficult for the outsider to believe in a reversal there of the general rule.

We will quote further from Mr. Martin's sketch of the climate of New South Wales as regards its effect on health, as he then observed it. In speaking of the numbers of the population we must not overlook the fact that Mr. Martin wrote in 1833; nor must we overlook the fact that the climatic conditions he describes are very similar to those of our own region:

"The salubrity of New South Wales is proverbial; of a community of 1,200 persons, only five or six have been known to be sick at a time, and at some of the military stations seven years have elapsed without the loss of a man."

In another part of his work he refers to a

seeming discrepancy in the climate of New South Wales, which is well pointed out and dwelt upon by Charles Dudley Warner in his excellent work entitled "Our Italy," wherein he calls attention to the same climatic oddities in regard to Southern California. "As an illustration of the climate," writes Mr. Martin, "I may here remark that, at Paramatta, I have, on a winter's morning, eaten frozen milk beneath an orange tree, from which I have gathered the ripe and ripening fruit. Old people arriving from Europe have suddenly found themselves restored to much of the hilarity of youth, and I have seen several persons upwards of 100 years of age. One was an old woman living as a servant at a public house, near Mr. Blaxland's, on the Sydney and Paramatta road; she was said to be 123 years of age, and yet did her daily work."

Paramatta, to which Mr. Martin refers, is about fifty miles inland and to the westward of Sydney.

Charles Dudley Warner, in "Our Italy," writing in the summer of 1891, says: "Another misapprehension this visit is correcting. I was told not to visit Southern California at this season on account of the heat. But I have no experience of a more delightful summer climate than this, especially on or near the coast.

"In secluded valleys in the interior the thermometer rises in the daytime to 85°, 90°, and occasionally 100°, but I have found no place in them where there

was not daily a refreshing breeze from the ocean, where the dryness of the air did not make the heat seem much less than it was, and where the nights were not agreeably cool. My belief is that the summer climate of Southern California is as desirable for pleasure-seekers, for invalids, for workmen, as its winter climate. It seems to me that a coast temperature of 60° to 75°, stimulating without harshness or dampness, is about the perfection of summer weather.

"It is probably impossible," continues Mr. Warner, as he sees and fully realizes the difficulties in the way of relating and explaining the actual but seemingly inconsistent climatic conditions of this unique corner of the earth, "to give an Eastern a just idea of the winter of Southern California. Accustomed to extremes, he may expect too much. He wants a violent change. If he quits the snow, the slush, the leaden skies, the alternate sleet and cold rains, of New England, he would like the tropical heat, the languor, the color, of Martinique. He will not find them here. He comes instead into a strictly temperate region; and even when he arrives, his eyes deceive him. He sees the orange ripening in its dark foliage, the long lines of the eucalyptus, the feathery pepper-tree, the magnolia, the English walnut, the black live-oak, the fan-palm, in all the vigor of June; everywhere beds of flowers of every hue and of every country blazing in the bright sunlight—the heliotrope, the geranium, the rare hot-house roses over-

running the hedges of cypress, and the scarlet passion-vine climbing to the roof-tree of the cottages; in the vineyard or the orchard the horticulturalist is following the cultivator in his shirt-sleeves; he hears running water, the song of birds; the scent of flowers is in the air—and he cannot understand why he needs winter clothing, why he is always seeking the sun, why he wants a fire at night. It is a fraud, he says, all this visible display of summer, of an almost tropical summer at that; it is really a cold country. It is incongruous that he should be looking at a date-palm in his overcoat, and he is puzzled that a thermometrical heat that should enervate him elsewhere, stimulates him here."

An Eastern man coming to Southern California must divest himself of all preconceived ideas, nor must he expect to adapt any of his Eastern experience or climatic knowledge to his new surroundings. Digging down two or three feet into the apparently arid sands of a river bed to get the cool river-water that in summer finds its *subterranean* way to the ocean, must be a novel as well as an Arabian Nights method of procuring water to one accustomed to the Mississippi or Ohio valley; and I well remember the impression made upon me on my first arrival, some twenty years ago, on seeing some wood-sellers going for wood on what seemed to me but a bleak waste, and to see them procure their wood out of the ground with pick, shovel, and axe—in other words, digging

it out of the earth,—the wood consisting of great, hard, snarled roots, out of all proportion when compared to the small growth of stunted and parched wood above ground. It is equally hard for an Eastern man to understand why butter, eggs, meat, and milk keep nice and fresh in any shelter *above* ground, or why cellars are here hot and entirely opposite in their effects from the cellars of the East. Nor does he understand why water taken out of wells should at times be warm and requiring to be exposed for some time in the shade above ground to render it pleasantly cool. We found that we had everything to unlearn and everything to learn here. We found that our previous knowledge was of no avail, and that we must enter into a new course of observations. In traveling we had to learn by sad experience that in winter one must wade through either mud or water rather than attempt a more dry and cleanly passage on the bordering seemingly dry and firmer but very deceptive and miry ground;* just as in seeking rooms we had to learn by experience that a north room was not as agreeably cool or as airy as a south room in summer. In fact, we found that we were in the same predicament with the Frenchman who was learning English and who nearly lost his head as the canal boat shot under a low bridge, because he did

*The hardpan of impervious material prevents the drainage underground; the drainage is here horizontal, and until it has taken place the ground is miry in low spots.

not know that when the captain shouted "look out" he meant not to look out. We seemed to find everything reversed here: the rivers were underground, and the cellar space and conveniences above ground; firewood grew underground; elsewhere you might drive through the adjacent ground on the side of muddy road or quagmire, but here you must religiously keep through its very centre if you would be safe. The strangest part of all seemed to be the fact that the clothing peculiar to early spring was here the most comfortable and the proper clothing all the year round.

We could fully appreciate the surprise of the newly arrived Englishman in Australia who, in writing back to his mother country, said: "As Australia is in everything regarding climate the opposite of England, it may be observed that the north is the hot wind, and south wind the cool; the westerly winds are the most unhealthy, and the east the most salubrious; it is summer with the colonists when it is winter at home, and the barometer is considered to rise before bad weather, and to fall before good. To these diversities it may be added, that the swans are black, and the eagles are white, the mole (*ornithorhyncus paradoxus*) lays eggs and has a duck's bill."

As we remark elsewhere in speaking of Southern California, it hardly seems as if it belonged to America, it really seems as if it were a chip split off by some mighty cataclysm from Asia, and floated across

the Pacific to be welded as an appendage to the southwestern corner of the United States, bringing with it all the peculiarities either of climate or of natural history that it could well detach from its former home. In its flight across the ocean it seemed even to have brought the Kangaroo rat.

Having prepared the reader so that he may not look upon the plain narration of climatic facts as if they were tales intended for the Marines, or the fancy sketches of an over-optimistic and too enthusiastic imagination, we may now safely proceed with an exhibition of the meteorological conditions peculiar to Southern California, assuring the reader that the youthful hilarity observed as having returned to elderly Europeans on landing in New South Wales, mentioned by Mr. Martin, has more than once been seen as a result of our own climate—the unlooked-for advent of a youthful but late-coming Benjamin into an elderly family group bearing full testimony to the rejuvenating climatic influences.

CHAPTER V.

SOMETHING ABOUT CALIFORNIA WEATHER.

Atmospheric humidity, temperature, soil, rainfall, altitude, proximity to or distance from the ocean, the neighborhood of large bodies of water, and various topographical conditions, are, according to their degree, so many climatic factorial elements. To their presence, modifications, intensity of degree, or total absence, the climatologists ascribe the various climatic properties, especially those that affect human health. To the combination of these elements, and to the degree of the representation of these elements —as, for instance, where we elsewhere allude to the peculiar combination of heat and moisture that produced such fatal results in New York in 1872—in a combination, we again ascribe such and such injurious or beneficial effects. Southern California cannot be judged by any of these rules. Just as the barometer offers different storm prognostics or forecasts in Australia from what it did in England, so we must divest ourselves entirely of all our preconceived ideas of meteorological elements and of their primary or combined effects on health, as gathered elsewhere, if we wish to understand this region, either as to forecasting the approaching weather or prognosticating its effects on health.

Appearances that would denote a rainstorm else-

where may be present at 6 o'clock in the morning, or even at 7 or 8 o'clock. An Easterner will surely think that it must pour down in torrents by 10 or 11 o'clock. The overcast sky is of a dark, leaden hue, and off to the west over the ocean, or to the east over the mountains, the massing of a still darker sky, and the great existing calm, would admonish the late dweller in the Mississippi valley to throw an anchor to windward, close all the windows and doors, fasten down all loose articles, make everything taut, and make clear the road to the cyclone burrow or shelter; the New Yorker would be induced to hunt up his umbrella; and the Eastern female would look at such weather outlook and quietly determine that she must spend the day at home, and make her arrangements accordingly. It is of no use for the one accustomed to such episodes to inform them that by 9 o'clock the sky will be of a brilliant blue, and that the sun will appear like a globe of golden fire and sail away in all its splendor across a field of clear blue until it sinks at dusk like a fiery ball on the distant sea horizon—it seems entirely otherwise to those accustomed to being tossed about by winds or obliged to get their sea-legs on in their sway against a forty-mile breeze when crossing a street, or who have had the gentle cyclone use them as lawn-tennis balls, or who have been accustomed to being snowed under, or to sudden drenchings of rain or peltings with hailstones.

As long as rain has not been telegraphed down

from Neah Bay, Seattle, or Portland, and until this rain has reached San Francisco, Santa Barbara, Los Angeles, and San Diego, look for no rain. The storm appearances, overcast skies, even the falling drops of a more than usually heavy early morning Scotch mist, do not deceive the Californian. The rain must come only in its usual order and after due and timely ceremonies, and after certain necessary and regular chronological occurrences. First, some tornadic or cyclonic disturbances must be inaugurated on the coasts of China or Japan, thousands of miles across the Pacific; then these must follow the course of the Japan Stream and cross the ocean; they must then strike the American coast in their full force; when they reach these shores they must attempt to climb over the tall mountain chains that bar their eastward progress, and they must seek either the mouth of Puget Sound or that of the Columbia as a possible entering-point; here they must dance up and down, and in their tornadic and cyclonic convulsions cover over as much of an area as possible—and this in all their vehemence and force —so as to create a long-lasting and continuous aspirating suction. This suction draws from the south, and from the farther south comes the air that supplies the place of that which has gone upwards in the cyclonic vortex. The longer this action, the further south this atmospheric displacement takes place, until, if sufficiently lengthy, the atmosphere over Southern Cali-

fornia, which has gone to the far north—and is then probably meandering over the high mountains of Washington or of British Columbia—is replaced by an air from the far south. Meanwhile the accumulated humidity centering in great quantity has begun to precipitate in the shape of rain. On Puget Sound it falls at the rate of 112 inches annually; as the area of rain precipitation extends southward it diminishes with the lessened humidity with which the air is charged or with the less intervening or intercepting obstacles which it meets in the way of mountain chains, until at San Diego the annual rainfall amounts to only 12 inches.

Some years, what are known as the Sonora rains —summer rains which fall copiously on the northwest of the Mexican mainland—cross the borders and invade both Texas and Arizona. Within the last two years—during an exceptionally stormy and rainy season which deluged the southwest of the United States, from the Missouri to the Colorado rivers—the conjunction of the occurrence of these storms with the Sonora storms gave such a westward tendency to the great mass of storm clouds that they crossed bodily over the intervening desert and poured down a deluge of waters upon the localities in closer vicinity to the desert—notably Redlands; the excessive and sudden precipitation being due to the cloud-laden atmosphere traveling westward coming in contact with the colder ocean air going inland, the point

or line of contact being marked by a sudden and copious rain. In twenty years this occurrence of storms not due to the general rain causes of California has only been seen once, but even then it did not proceed farther than the eastern limits of the section, the usual play of the trade-winds having exhausted the rain clouds before they could proceed much farther westward than the passes and foot-hills in the neighborhood of the desert.

At other seasons, however, and one may almost say in every autumn, at the season of the Sonora storms, huge banks of dark clouds, shading upwards into darkish gray and finally into compact white vapory clouds, are seen to mass on the far eastern horizon. Straggliug flashes of chains of summer lightning fitfully play through the dark masses, and as evening approaches the eastern skies are at times vividly illuminated. At such times there is a battle royal being waged by the western edge of the storm, as it tries to pass through or over the great column of superheated air that rises from the vast surface of the sandy wastes of the desert; but the rising bank of hot air, ascending much higher than the storm clouds to its east, effectually bars its westward passage. Were the desert to become irrigated and its wild wastes reclaimed to agriculture, the western slopes of the mountains of Southern California would be visited by the summer deluges from the Sonora storms, and some months later by the rains due to the cyclonic areas generated on the far-off Asiatic shores.

Such is the physical history of a Southern California rain-storm, as first outlined by Lieut. Glassford of the Signal Service; which also explains the absence of rains except at particular seasons—those in which cyclonic disturbances originate on the Asiatic coasts. England, in common with Western Europe, is indebted for her great rains and storms to like cyclonic disturbances that originate in the West Indian seas, and which in their turn follow the course of the Gulf Stream. Climatic writers have likened the climate of Victoria, in British Columbia, to that of London; in the above natural history of a storm on the Western American coasts we find the explanation.

As already observed, Southern California has within its territory every extreme of rainfall. This is owing to the lay and heights of her mountain chains, which, running in alternate ranges east and west, and further south facing to the southwest, intercept in different localities different degrees of northward traveling humidity. In the Cajon Pass, in the mountains that form the high northern boundaries of the region, the rainfall comes at times like a Biblical deluge, as 36 inches have there at times fallen, and in a few hours; whilst to the southwest of this pass, in the low depths of the Colorado desert, the total rainfall for a whole year has at times hardly amounted to a perceptible degree of moisture.

In the coast localities the rainfall amounts to from 10 to 14 inches; further inland, at Lakeside,

Escondido, Riverside, and Los Angeles, the rainfall is one-third greater, and in the foot-hills and mountains it amounts to from 30 to 40 inches. On the coast and in the intervening plateaus and low valleys most of the rainfall comes with the prevalence of the land breeze during the night.

In connection with this part of the subject, it is proper to state that, owing to the hard nature of the soil, which is, on the table-lands or mesas, generally composed of a decomposed granite formation, and the sandy nature of the soil of the valleys, there is not at any time any mud. The shedding properties of these soils on the mesas, and the filtering conditions in the valleys, make mud an impossibility. There are patches, here and there on some of the side-hills, of what is called *adobe*, a tough, hard, and tenacious blackish clay, alongside of which Virginia mud cannot be mentioned, as it is utterly impossible to drag a wagon, and one might even say a saddle-horse, through its sticky and fastly adhering as well as rapidly accumulating doughy material. In summer this black *adobe* dries into a hard brick-like mass, full of cracks and fissures and generally barren.

There is one peculiarity belonging to California storms that is fully in keeping with the seemingly paradoxical condition of everything else that pertains to Southern California, in that, whereas the prevalence of the storm-bringing winds and the occurrence of storms brings discomfort elsewhere,

the same condition brings a better feeling here. We have repeatedly noticed this condition of affairs among many pulmonary invalids, who with continuous southerly and moist winds found an easy and deeper respiration; which has often led the writer to wish—with all deference to the contrary views of many of our Colorado climatologists—that the Southern California climate might be oftener favored with these comfort- and health-bringing moisture-laden southerly winds, as we have always noticed that with the prevalence of these winds and in seasons of more than an average rainfall such invalids did better in every way, and, what is stranger still, even those of a gouty or rheumatic diathesis shared equally in the benefits. From a long period of observation—extending over twenty years—the writer is satisfied that invalids of all kinds have always done better in every sense during what are called our very rainy winters—the season of rain in California—than they have during the dry or rainless winters—as for instance such seasons as that of 1876 and 1877, when the total rainfall for twelve months—July, '76, to June, '77—was at San Diego only 3.75 inches.

In choosing a Southern California locality for an invalid I should not be influenced by the amount of the rainfall; the drainage of the surface and the nature of the soil would influence me much more. For whether there fell ten or fifty inches of rain, would be a matter of indifference as long as the

patient was on easily drained ground, under good shelter, and in no danger of being swept out to sea in a wash-out—all conditions that can be easily secured.

CHAPTER VI.

DISEASES OF THE RESPIRATORY ORGANS.

One of the most puzzling contradictions is the actual mortality of Southern California when confronted with the apparent, as exemplified by the death returns. "How can you say that you have no great mortality from this disease, or how can you say that the disease does not prevail in your section, when statistics show the greatest death rate?" Such a question is on a par with questioning the peacefulness of the valley of Gettysburg because on three July days alone the violent deaths figured up into the thousands, and its peaceful fields were torn and ploughed by shot and shell, and its sod made slippery with blood. Southern California is in one sense but an extended battlefield wherein the wager of battle is fought to a finish between poor wrecked man and persistent disease. After a long struggle elsewhere, man flies to the sheltering aid of its climate, where—like the adherents of Charles VII. of France, shut in within the sheltering walls of Orleans in their last struggle for the existence of France and its monarchy—he will fight his last battle to the greatest advantage. Here man or disease must fall; the latter, robbed of its climatic aids, so helpful in the East, is now on an equal footing, and if the man has not wasted too much strength in the unequal contest elsewhere he may

here down his enemy. Confidence, however, misplaced, in their resisting or recuperative powers, leads too many into a useless conflict against fearful odds, and by the time they recognize their folly they have expended too much strength and so sapped their resistance that even a flight to Southern California becomes as useless as Lee's retreat, with his brave but helpless remnant, from the trenches of Petersburg. That, under the circumstances, many here meet their physical Appomattox, is not to be wondered at. From these comes the great death-rate from all manner of diseases, and the great swell in various death statistics that carries our death rate far beyond the rate of the United States as a whole.

There is probably nothing harder for us to give an answer to, than the question: What are the percentages of your cures, your arrests of disease, or of your death rate, in this or in that disease? Such information, in a comprehensive sense, is altogether out of the question. Some will refer to their case-book, and from its not always reliable interior regale you with the history of this or of that case wherein the invasion and enroachments of the disease are as definedly and as accurately marked out and noted as were the movements of the different German army corps on the soil of the ill-fated France of 1870. This shows a commendable spirit of enterprise, but on the whole it simply means nothing. Such cases and cures occur in Maine and in New Brunswick, just as

they do in Philadelphia or in Winnipeg. Such singly detailed cases go for nothing, as their like is as liable to be found in Lapland or in Siberia, in Alaska or in Patagonia, as in our own region. General statistics are unobtainable on these topics, and detached or individual cases even from the most conscientious case-book cannot be taken as a guide for the greatest number.

Dr. Norman Bridge, formerly of Chicago, but for some years a resident of Los Angeles, gave the situation in a small compass, in relation to phthisis, when in a communication to the *Medical Record* he said:

"Many cases of both chronic and acute respiratory diseases come to this coast and recover or greatly improve. Many fail of recovery or any notable improvement. The proportion between these two classes it is manifestly impossible to know. Cases of long standing are less likely to improve than those in the early stage of progress. . . . The proportion of tuberculous cases recovering is small, in proportion to the whole number seeking relief. It is the nearly invariable rule that tuberculous cases come here after they have lost in delay most of their hope of improving under any conditions."

Dr. F. D. Bullard, of Los Angeles, presented at the meeting of June, 1893, of the Southern California Medical Society, a paper entitled "Apparent and Actual Mortality," which comprised three years' carefully collected statistical matter from the Los Angeles

Health Office. In regard to consumption he observes as follows:

"In a recently published work upon the geographical distribution of disease, there occurred the statement that the Pacific Coast, and more especially Southern California, was severely infected with phthisis. The author determined the fatality of a disease in any section by comparing the number of registered deaths from that cause with the total population; using these data he came to the conclusion that consumption was excessively prevalent in California. Taking the mortuary reports of Los Angeles, without any explanation, such a proposition, as far as that city is concerned, would be proven; for Los Angeles has a phthisical death-rate of 3.18 per one thousand population, instead of 2.54, the general mortality for consumption in the United States.

"In making the application of the relative frequency of diseases to the entire number of patients in public institutions, due allowance must be made for the chronicity of the trouble. It is well known that hospitals always contain an undue proportion of sufferers from chronic and fatal maladies. For instance, out of 2578 cases treated during the last three years at the County Hospital, 441, or $17\frac{1}{10}$ per cent., had phthisis. That a very great number who enter the wards are in the last stages, is evidenced by the high mortality—one in three dying; yet, so large a proportion of the patients are tuberculous, one-half of the

total deaths are due to consumption. The long illness, enforced idleness and expense, exhaust the means of sustenance of many, and compel those who would not otherwise do so to appeal to the authorities for help. Another reason why the death rate is higher in than out of the hospital, is the fact that the wealthier invalid, when he sees that death must soon overtake him, often returns East to spend his last days among friends at home.

"Because every other death at the hospital is due to consumption, it would be manifestly unjust to infer therefrom that half of the mortality of the city arose from the same cause; yet it would be just as correct to draw such a conclusion as it is to say, because the lethal ratio of phthisis to other diseases is $23\frac{6}{10}$, instead of normal $12\frac{1}{10}$ for the country at large, that Southern California is severely infected with phthisis. California bears the same relation to the Union as the hospital does to the city, and hence receives a great many tuberculous invalids from the East; just what proportion are thus imported, the author will try to show.

"Out of the entire number of patients at the hospital, 186, or $7\frac{3}{10}$ per cent., were Californians by birth; while of the 441 consumptives, the State furnished but 13, not quite 3 per cent.; in other words, more than two and a half times as many Californians ought to have had phthisis to bring the ratio of native consumptives up to that of the general proportion for all

diseases. Of the natives of other sections, 196 had been here less than one year, 36 between one and two years, 33 between two and three years, 24 between three and four years, and 135 four years or over. It is not an easy thing, or even at times possible, to determine the climatic responsibility of phthisis from residence alone; but from personal inquiries the author would be led to believe that many tuberculous patients who have been in this country full three years came here with their trouble fixed upon them. Granting that the line between cases of foreign and domestic origin should be drawn at the end of three years, then two-thirds of all instances are imported. In weighing these statistics the fact must not be lost sight of that many consumptives so improve here as to lengthen their life to a longer period than the natural history of the disease would lead one to expect; and those dying after a considerable residence here are quite likely to be regarded as cases which were contracted in California. Indeed, the mortality reports show two distinct mortality waves for tuberculosis, a higher in the first two years, and a lower during the fifth and sixth years—about one-fifth being reported after five years' residence in the county. The only explanation which seems to account for a second crest in the consumptive rate is the supposition that during the fifth and sixth years the most of the fatal imported cases which survive acclimation die. It is customary, on admitting a patient to the hospital,

to decide, if possible, whether the disease was acquired in California or not. Out of the 400-odd cases, in 39 alone (9 per cent.) was it quite certain that the disease was contracted here—one-third, too, of this number being the native 13 already mentioned. There remain 109 cases who have lived in the State four or more years who do not give the history of having contracted the disease in California. On the ground of time alone these would be regarded as chargeable to this climate, but from the thorough nature of the investigation the author is of the opinion that the number who developed the disease in California is not far from forty. Whenever a history of hæmorrhages, persistent cough, wasting, and advice to go to California for weak lungs, was elicited, no matter how long the patient may have lived in the State, the conclusion that he came here with and for consumption is inevitable. Almost without exception such had been the history of all but the 39 mentioned. On this as a basis, the real phthisical death-rate for Los Angeles would be 2 per 10,000—about thirteen times less, rather than a quarter more, than that for the nation as a whole.

"Turning to the city records, which include the hospital mortality, we find 2631 deaths in three years, of which 619 were from phthisis. Sixty per cent. of these had been here less than four years, 18 per cent. less than six years, 19.8 per cent. over six years, and 2.2 per cent. only were born in the city; in other words, there were but fourteen native consumptives,

a little more than a half of 1 per cent. of the total deaths. It seems likely most of these 136 who were born or lived here over six years, acquired the trouble in California, though the Health Officer is certain about less than a quarter of that number. Upon the six-year basis the death rate for the city would be $\frac{7}{10}$ per thousand, but in the opinion of the officials a little less than $\frac{8}{10}$, an estimate that tallies quite closely with the hospital records.

"It is interesting to note the effect season has on both admissions to the hospital for phthisis and the number of deaths from that cause; 239 applications, or 54 per cent., occurred during the wet period from November to April inclusive; 202 (46 per cent.) in the six dry months. The fatality among hospital patients is 60 to 40 according to season, and 58 to 42 in the city at large. The months of December, January, and February register a 40 per cent. increase over the monthly average. Three factors unite to produce this condition: comparative inclemency of the weather, the fall influx of moribund consumptives, and the prevalence of influenzas. In the years 1879–1889, when the last influence was inoperative, the deaths were 14 per cent. more numerous in winter than in summer. It is quite fair to suppose, then, that *la grippe* increased the deaths from consumption during the midwinter season fully 25 per cent."

In 1889 I read a paper on the Physical Influence of the Marine Climates of Southern California Coasts,

before the Southern California Medical Society. In that paper I gave the following, bearing on the subject of consumption as affecting San Diego:

"From a carefully prepared table from the mortuary report in the Health Department's office of San Diego, I can give some interesting data for this city in this regard. In a period of ten years, there were 258 deaths registered from phthisis; of these, one had only arrived the day before, 33 were here from one to thirty days, 46 from thirty to ninety days, 29 from ninety to one hundred and eighty days, and 35 from one hundred and eighty to three hundred and sixty-five days; making 144 who died after from one to three hundred and sixty-five days' residence. Of the balance, 27 died during the second year's residence, and 18 managed to worry through ten years after coming here. Of the remainder, 24 died between the second and ninth year, and of 36, although strangers, no exact information as to actual length of residence could be obtained; the remaining 9 were born in Southern California.

"Out of 258 consumptives, 86 were foreign-born —Canada having 21, Germany 13, Ireland 13, Mexico 13, Sweden 7, England 4, Scotland 4, Switzerland 3, Greece 2, France 2, Russia 1, Portugal 1, China 1.

"From the United States, New York furnished 24, and the New England States 18, the balance coming from every State in the Union.

"There is in Southern California, and especially

in San Diego, a large population of Italians, Greeks, French, Spaniards and Austrians from the shores of the Adriatic, with a sprinkling from the Mediterranean islands of Malta and Minorca, and a number of Portuguese. Out of all these, many are engaged in the fisheries, whaling and sealing, many having lived here for over twenty years; not one of the colony living here has contracted phthisis, or died of any diseases of the respiratory organs.

"Of the 5 from the above nationalities in the recorded deaths, all came here with phthisis and were no part of the population. The Portuguese was here two years; one of the French, a woman of 23 years, only four months; the other French, a man of 60, only eighteen days. The two Greeks were here four months and six months, respectively.

"There is something interesting to us as physicians in the nine recorded San Diego-born as dying of phthisis; out of the nine deaths only one was a male; the ages of the eight females were as follows: 36, 27, 20, 20, 18, 17, 16, and 15."

The deaths, in these young women, ascribed to phthisis, were in reality but the closing scene in a drama of dysmenorrhœa or of amenorrhœa. The natives have here but little respect for the nature or for the importance of the menstrual functions, and it is not uncommon for them to bathe their feet in cold water at such times for the express purpose of either delaying or temporarily suspending the period.

They do so so frequently and with such seeming safety that they fail to recognize any connection between these deaths and such a cause. I carefully investigated the history of the above cases, and find that in every case the disappearance of the periods was the first evidence of ill-health, the pulmonary trouble in every instance being a secondary occurrence or a result of the prior disturbance.

Since the above related investigation of ten years' death rate, I have, however, seen a number of cases who have died of unmistakable phthisis which originated here. In some of these cases there was a prior *grippe* history, and in some I could see no other cause but pure infection. Since the advent of the *grippe* and an unaccountable epidemic of undoubted typhoid that occurred in 1888—ascribed by some to the great upturning of the street soil incidental to the extensive as well as unseasonable street-grading then being done—there has been a tendency to phthisis which was previously unknown; the chances for infection have also increased with the greater influx of invalids, as the great immunity enjoyed by the inhabitants has made them careless and heedless. Nevertheless, if the invalid immigrants would come during the first stage or inception of the disease, many of them would here regain the health which elsewhere goes and the life of the patient with it. It is also true that when we come to sift down the actual occurrence of consumption among our own people or among those who

come here in perfect health, we find—eliminating alcoholism and allied causes—an almost inperceptible or mere fractional percentage.

As to bronchial diseases and pneumonia, and as a general summary, I will again use the words of Dr. Bullard:

"But the hospital records do not show how severe the ravages of pneumonia have been. Pneumonia, a disease formerly conspicuous in Los Angeles by its rarity, now stands second to that great scourge, consumption, causing, according to the Health Officer's reports, almost a third as many deaths, with a percentage of $7\frac{7}{10}$ and a death rate of about one per thousand inhabitants. One must not forget that these figures include all three of the great influenzal epidemics. So many of the pneumonia cases had their origin in this disease, an attempt must be made to ascertain what proportion are due to that cause. There were five months during which *la grippe* was especially prevalent: January, 1890; January, February, December, 1891; and January, 1892. In this time there were 99 fatal pneumonia cases, about 20 a month. The other thirteen rainy months averaged five deaths apiece, while the eighteen dry months had a mean of three each. Now if the ratio common to these thirteen months had held good for the other five, there would have been 73 fewer cases of pneumonia. In reality, then, this surplus over the natural number belongs to that infectious and contagious epi-

demic, "the grip," which in its several visits had, in from 10 to 90 per cent. of the cases, respiratory complications. Ascribing these 73 to their proper source, simple pneumonia will account for 5 per cent. of the deaths.

"The conclusions deduced in reference to respiratory affections are as follows: chronic maladies are very common, but almost entirely imported; acute troubles not frequently met with, and chiefly hyemal. Phthisis is rarely developed anew, patients in the incipient stages are generally cured, and frequently benefited if there is only a small involvement; they are, however, never improved, but made worse, if the disease is well advanced. Pneumonia in this section equaled during the epidemics of *la grippe* the ratio usually attained beyond the mountains by this disease in ordinary years. The other acute diseases, bronchitis and pleurisy, are very rare and scarcely ever fatal."

I have only seen four cases of sthenic pneumonia during my residence in Southern California. In Los Angeles there is a much larger floating population of laborers and others, not living under the best of hygienic rules, who during a *grippe* year would naturally furnish a large number of cases of pneumonia. But from observation I find that, among those who have taken any care of themselves, there is about the same average immunity to acute diseases of the respiratory organs as the region has generally been reputed to give to man and animals.

CHAPTER VII.

DISEASES OF THE KIDNEYS.

Several years ago, in a paper on "The Influence of the Coast Climate on the Renal Organs," read before the Southern California Medical Society at its San Diego meeting, I said as follows:

"There is an impression that Southern California possesses a climate aggravative or productive of renal disorders. This impression has its origin in our seeming low temperature, prevailing northwesterly winds blowing off cool and brisk from the Pacific ocean, and the very insensible character of the perspiration peculiar to this region.

"Experience and observation teach us the fallacy of this impression; and by comparison of our climatic conditions with those of some other known and well understood locality or region possessing coldness, humidity, and wind force or velocity, all more pronounced and in a much greater degree than our own, and a careful study of the vital statistics of those same regions, we will be convinced that coldness of the atmosphere and a high relative humidity, even when associated with brisk sea-winds, are not factors in producing the so-called renal diseases; but that on the contrary such conditions, if uniformly present, are prophylactic and curative.

"The study of the relation of seasonal meteor-

ology to disease has fully established the fact that variability, and not cold or moisture, is the principal agent in producing disease; and further, that where uniformity leans toward a low temperature, with a moderately high humidity, less disease and a lower death rate prevail than where the opposite condition exists.

"Great Britian furnished the most reliable data as to meteorological conditions and vital statistics whereby to arrive at a conclusion as to the relative merits of such a climate as now under discussion, and to contrast its effects with those of opposite conditions.

"The position of England and Scotland, between the Atlantic with its Gulf Stream on its western shores, and the waters of the North Sea on its eastern shore, gives to its two shores climates of widely different conditions. The people are of nearly like habits, and the effects of climate in developing or exempting men from renal diseases are so pronounced, and the nature and conditions of the climate can so well be delineated and described, as to leave it beyond any question of doubt that certain localities are liable to, and others are exempt from, renal affections, from climatic effect alone.

"From Dickinson we learn that in the British Islands the correspondence between the amount of renal disease and the variability of the climate is very striking. On the western coast washed by the Gulf

Stream the winters are warm, but the summers have barely warmth enough to ripen wheat. As a uniform temperature prevails throughout the year, diseases of the kidney are not half so frequent as on the eastern side of the kingdom bathed by the waves of the North Sea, where the weather is much hotter and colder than on the Atlantic shore, and undergoes much larger and more frequent variations.

"According to the same author, renal diseases do not flourish where there is heat enough to allow of the successful cultivation of wheat, but not so much so as to replace deciduous trees by the palms and other endogenous plants characteristic of tropical climates.

"There is one example of the British climates, in its conditions and in its relation to renal disease, that I wish to call your attention to, in comparison to our Southern California coast climate; this is to the climate of the Shetlands—much colder and bleaker than our own—the annual mean temperature being, according to Reclus, 15° colder; besides the winds are cold, high, and boisterous. The Shetland winter, although windy and stormy, is devoid of frost as its summer is devoid of heat, the whole year being of a neutral complexion with a uniformity similar to the Southern California coast, though much colder. Of these islands, it is found that diminished variation and freedom from renal disease go hand in hand, and that, although the summer is the most uncongenial in the kingdom, and the whole year may be said to be one of steady and

uniform cold weather, they are less affected with renal disease than any other portion of Great Britain.

"To further prove that climate is the factor in exempting from renal affections, Sutherland, the northernmost county of Scotland, furnishes unequivocal evidence. On its western shore is the Gulf Stream and uniform temperature, with diminished amount of renal disease; while on its eastern shore, bathed by the North Sea, with a climate of great and sudden variations, renal diseases are prevalent. From the above statistical facts, mainly the results of researches of Dickinson, we arrive at the natural conclusion that the climate giving the greater equability, with a leaning toward a high relative humidity and a moderately low temperature as constant in their ratio, must be the one most favorable for the prevention of such diseases as now under discussion.

"I will give you the *résumé* of some investigations that have been made in determining the effects of moisture and a low temperature on the animal economy, not only as interesting statistical facts, but of importance to the students of the effects of season and climate on renal disease. As an introduction to the subject the following is very applicable:

"Dr. George H. Rohé of Baltimore, in a paper entitled 'The Meteorological Elements of Climate, and their Effects upon the Human Organism,' read before the Section on Climatology and Demography of the late International Medical Congress, made the

following remarks: 'Great importance has been attributed to moisture of the air as an element of climate. While the morbific effects of *dampness* in the atmosphere are acknowledged in the causation of rheumatism and neuralgia, a wide difference of opinion is still current in the profession regarding the remedial or morbific effects of a humid climate. There is good reason to believe that the insalubrity of a high humidity has been greatly exaggerated. The testimony in favor of a marine or insular climate in the most varied diseases is too positive to admit of denial.'

"Damp or moist and cold seasons have heretofore been looked upon as a prime factor in producing those forms of diseases coming from derangements of renal or dermoid functions, but investigation has shown that variability of temperature, great variation in humidity and barometrical pressure, with the attendance of other meteorological disturbance, are the real factors in increasing the ratio of these diseases. The morbific results are more noticeable during the spring months; and what follows locally in the case of frost-bites or chilblains as the result of transition from the effect of a very low to a higher temperature, may also be said to take place in a general or systematic condition, but more slowly, in producing the diseases peculiar to these seasonal periods. But granting that this is the fact, it still leaves out cold and moisture as a *direct* cause or factor of these diseases.

"One of the first observers to give a definite

shape to this subject, and place cold and moisture as factors of physical disturbances in their proper light, was Baron Larrey. During the campaign in Poland, in the spring of 1807, he remarked that during the 6th, 7th, 8th, and 9th of February—although the troops were exposed in open bivouac to an extreme degree of intense cold and snow, and a severe frost existing during those days—that the soldiers did not complain, but on the night of the 9th and 10th the mercury ascended several degrees and was followed on the 11th by a thaw. Immediately frost-bites and other local disturbances became prevalent, and many who escaped local injury fell victims to 'diarrhœa, dysentery, catarrhal and rheumatic disorders, which may be attributed to the sudden change of temperature.' After the battle of Eylau the troops suffered greatly from the thawing, but in the middle of March snow and intense cold returned, 'contributed greatly in preventing disease, in restoring the wounded and reëstablishing the health of the troops.' So firmly convinced was Baron Larrey of the morbific effects of atmospheric variations, and of the harmless effect of extreme cold *if constant*, that he affirmed that severity of cold weather by itself was harmless, provided *the cold remains the same.*

"As a sequence of custom, many have the opinion that our moderately high constant humidity must be detrimental to health, and more than once has the winter climate of California south of Point Concep-

tion been termed moist, in contrast with the *dry cold air* of the plains or the upper Mississippi valley for the same season. The following table from the U. S. Signal Service Report will show that the supposed dry air of those inland regions is in some instances more saturated with moisture than our own sea-shores during the winter season:

	Mean Relative Humidity.		*Mean Temp. for Month.*	
	July, '77.	Jan., '78.	July, '77.	Jan., '78.
Los Angeles, Cal.	61.8	61.0	71.1	54.1
San Diego, Cal...	73.8	68.0	68.9	55.0
Bismarck, Dak...	63.6	77.4	70.9	17.5
St. Paul, Minn...	62.1	79.7	73.6	22.5
Denver, Col.....	31.9	52.7	73.8	26.1

"S. Weir Mitchell found what was contrary to the accepted theory, that cold moist months, marked by low mean temperature and a high relative humidity, furnished but a small proportion of attacks of chorea; that with the rising temperature of the spring months in March and April, cases became more frequent, the ratio being kept up into the warm season, when it gradually declined, remaining low for the autumn and winter.

"The condition of seasonal weather in inducing suicide is positive. According to Allan McLane Hamilton, suicide is more common during the summer, and he quotes Forbes Winslow in asserting that in London the foggy months have relatively fewer suicides than the clearer months. Several years' ob-

servation give double the number of suicides during the middle of summer relatively to those of December.

"Morselli, in his work on Suicide, in speaking of the relation of seasons to suicide, mentions the fact that for a long time it was maintained that suicide was more frequent in damp, cloudy and dark weather, as such a condition was thought to favor the development of melancholy passions. Morselli carefully gathered all the possible statistics in relation to this subject, and found the following results: Those countries which gave the maximum number of suicides in the spring months—March, April, and May—were three countries in the north of Europe *where the change between cold and warm seasons is sudden, and acts severely on the constitution;* on an average that the transition period between spring and summer, and especially the month of June, exercises the most positive influence on suicidal tendency, and that winter, particularly December, the negative. In his summary he finds that suicide is not so much the result of the intense heat of the advanced summer, as of the influence of the early spring and summer, which seize upon the organism not yet acclimated and still under the influence of the cold weather. Then again, we find variability and sudden change of weather, by their internal influence on the organism, producing a complex result from induced physical change in man. That meteorology is a prime factor in this, cannot be doubted; as stated by Morselli, the regularity in the

annual distribution of suicide is too great for it to be attributed to chance or the human will.

"From Richardson's work on Preventive Medicine many interesting facts can be learned in regard to the relation of season to diseases. The following notes from the above work are very instructive. It will be particularly noticed that the first period, termed the period of dampness and cold, has the least relation to kidney diseases.

"Buchan and Mitchell, in treating of atmospheric temperature and damp in relation to disease, divided the London year into six periods, each of which has a climate peculiar to itself. The periods are as follows:

"The first period, from the fourth week of October to the third week of December, termed dampness and cold.

"The second period, from the fourth week of December to the third week in February, marked cold.

"The third period, from the fourth week of February to the second week of April, marked by dryness and cold.

"The fourth period, from the third week of April to the fourth week of June, termed dryness and warmth.

"The fifth period, from the close of June to the fourth week of August, termed heat.

"The sixth period, from the first week of Sep-

tember to the third week of October, termed dampness and warmth.

"The distribution of renal disease and the aggravating influence thereon by the different periods of differing temperature and humidity, is very interesting and instructive, if not surprising. The maximum number of kidney complaints happened during the second or cold period; those from Bright's disease during the third or dry and cold periods. Gout finds its maximum deaths during the fourth or warm period. During the fifth or heat period deaths from kidney disease in general—Bright's disease notably—and pleurisy, pneumonia, bronchitis, and asthma, attain their minimum, as might be expected; and during the sixth or period of dampness and warmth, gout finds its period of minimum deaths.

"Buchan and Mitchell, in their researches in the relation of weather and season as causes of disease, give also a fact corroborative of the Tables of Morselli as well as of his deduction that suicide is more attributable to meteorological causes than to chance. In London the period of deaths from causes classed under the term *from privation*, has its maximum number of deaths from December to the middle of April, and the minimum from the middle of April to the end of November. This is as might be expected. But it is also well known that only a very small percentage of those suffering from varied privations affecting vitality succumb; it then follows that the

largest percentage of those who by physical privation and suffering would suicide, would do so when depressed by the above mentioned influences, bringing the maximum number of suicides contemporaneous with the maximum deaths from privation. Here the much greater effect of atmospheric variability on the organism in this respect than that exercised by physical suffering, which may even bring the mind to the verge of desperation, is self-evident, for the minimum suicides take place during the period of maximum deaths from privation, and the maximum suicides in both London and New York take place during the period when deaths from privation hardly ever occur.

"Dr. William Farr, by careful computation from British statistics, concluded that after the twentieth year of life the danger of dying from a fall of temperature is doubled every nine years.

"Phthisis pulmonalis and renal disease go hand in hand in prevalence as well as in election of climatic regions. Either north or south, as the regions of the temperate zone approach warm or colder countries, these diseases diminish."

In the above I have purposely included the views of Morselli in relation to suicide and the weather, as I am a believer in the view that the uric-acid diathesis plays a most prominent part in the majority of cases of mental derangement. The majority of suicides do not commit the act on the Stoical principle of the ancient Romans, or from any other settled

philosophical principle; but it is the result of insane delusion. In nearly all the cases of suicide that have fallen under my notice, I can only remember two instances in which it might be considered a sane act. The play of renal disorders in inducing insanity has of late been sufficiently demonstrated to require no further elaboration.

Dr. Bullard, in his work on "Apparent and Actual Mortality," has the following, which fully accords with my own observation in relation to Southern California. It refers to nephritis, and may also be taken as similarly referring to other renal affections:

"A bald statement of the facts collated in reference to nephritis is sufficient to show how rare kidney troubles are in this section. A little less than 1 per cent. of the admissions to the hospital were granted for this cause, though its fatality was about as high as consumption, as only those in the last stages made application. In the city it caused $3\frac{81}{100}$ per cent. of the deaths, having a mortality rate of $\frac{43}{100}$, one-fourth more dying in winter than in summer—a fact which shows the wet season, as one might expect, is the critical period for this disease. Sixteen of the decedents had been here less than one year, and four less than two, the next five years were charged with five deaths apiece, eight had been here between five and seven years, and twenty over seven years, while in seventeen instances the length of residence was unknown. There were five cases of acute nephritis,

which with the above amount to eighty-five in all. Without question the twenty dying during the first two years in California came to the State when well advanced in the disease. Counting out this quarter, the death rate for Los Angeles would be less than half that for the country in general."

In reference to the seasonal distribution of renal diseases and their allies, Dr. Bullard finds that an unusually long period of comparatively inclement weather is followed by an increase of the deaths from nephritis. This is probably due to the greater difference that exists between the day and the night temperature. As remarked by Dr. Bullard, "This country is characterized by a large nychthermal range, which also increases as the coast is left." Whilst, as he further observes, this change is greater in summer than in winter, we must also not fail to observe that during the winter rains, when there occur a great number of "wash outs" on railroads, wagon-roads, and in streets, the laboring class are at that season subject to great exposure and sudden chilling; besides, too many of the houses occupied by that class are more intended for summer Californian weather than for the wet and rainy months of winter. As we recede from the coast, the greater, more sudden, and more violent become these miniature deluges, or, as they are here called, "cloud bursts;" here we also find the greatest range, and consequently the greatest resulting physical evil. On the immediate coast

— Santa Barbara, Ventura, and San Diego — the climate is more insular and partakes more of the equability of the low outlying islands to the north of Scotland, and with this greater equability there exists also an accompanying less amount of renal diseases.

In this connection there is one condition that is more or less intimately connected with renal disturbance that we must notice—this being the great rarity of apoplexy, both on the immediate coast and in the near interior. The existence or absence of this affection may, in one sense, be taken as an index to the effects of the weather in inducing renal disturbances—just as much so as the existence of the tomato plant can be taken as a sure index of the absence of frost. According to the statistics of Dr. Bullard, out of 310 deaths occurring in three years at the Los Angeles Hospital, only 6 were from apoplexy, being a little less than 2 per cent. When we consider that in London (Thomas King Chambers, "Climate of Italy," page 37) the ratio of apoplectic deaths to the whole number of deaths is as one to forty, and that in Genoa—with an extremely variable and suddenly changing climate—the ratio is as one to twenty-two, the less than one in fifty in Los Angeles (and in the more exposed, unsettled and intemperate class) speaks well for the little physical disturbance that the climatic variability of the latter locality causes. Dr. Joseph Kidd mentions that on the Italian Riviera middle-aged men at all

corpulent or plethoric are very apt to be stricken down with either apoplexy or paralysis. On the immediate coast-line of Southern California it is one of the rarest of diseases.

The United States are full of physical wrecks incidental to renal disorders; that many crowd westward in a vain hope of recovery, only to die from home, is but too apparent to any observer, as most cases follow the example of those afflicted with diseases of the respiratory organs, of whom Dr. Bridge says, "It is the nearly invariable rule that . . . . they have lost in delay most of their hope of improving under any condition."

Many cases of renal disease often do better on the edge of the desert, the free perspiration giving the body as well as the overburdened kidney much relief. My friend Dr. R. J. Gregg—who has paid much attention to this particular subject—often advises a trip to the desert's edge, in some cases with the most marked benefit. This is especially to be expected in cases of renal asthma, and in all cases of imperfect blood depuration owing to a defective or inadequate kidney. I have seen some such cases who did far better in the interior or on the outlying islands than in the more constant cold wind of the immediate coast of the mainland.

From my observation of many of these cases, and the fact that elsewhere some intercurrent disease would cut off the chance of the invalid's ever dying

of the original kidney affection or of heart complications following, I feel warranted in believing it is this absence of any interloping disease that gives to California its great mortality from heart diseases. Most of our statesmen and speculators elsewhere die of some chronic kidney affection, and the average older Californian has added a hard life of exposure and hardship to trials that combine all the worries of half a dozen statesmen and stockbrokers. Many invalids, broken down from business worry in the East, bring hither their demoralized and sadly impaired kidneys for repairs; these men all help to swell the list of deaths from heart disease. I know from observation that a weak heart and a defective kidney will support work better here than in the East.

CHAPTER VIII.

MALARIA, RHEUMATISM, AND OTHER AFFECTIONS.

I do not know of any endemic malaria—in the sense in which it is known in Texas or in the Mississippi valley—existing in Southern California. As remarked elsewhere, there was in 1888 an unaccountable epidemic of typhoid fever, but of intermittents or marked remittents from endemic causes I have seen none, either in private or in hospital practice—the latter covering a period of some five years as County Physician and some seven years in charge of the sick of the U. S. Marine Hospital Service. In the County Hospital we had mainly consumptives, who had worked their way either from the North or from the mountains of Arizona, and who had managed to subsist here until gaining a residence and admission to hospital. Not a few were venereal victims, or paralytics from that cause, but during all my service I saw neither malaria nor any fever that could be termed endemic; although, during that time, I attended not a few cases who had come to make a good convalescence from attacks of remittent, intermittent, or some malarial fever contracted on the high and dry mountains of Arizona. Many persons that formerly lived in San Diego have fallen victims to these fevers and to pneumonia whilst engaged in mining in the Ari-

zona mountains, where the air is exceptionally dry, and where the scanty vegetation removes all suspicion of any paludal poison—these things have always been a puzzle to me, as I have also seen much rheumatism develop from the same localities.

Typhoid fever, like most other diseases, when developed here, differs materially in its course from like fever in the East or in the great Valley States. Improper sanitation will develop the disease. One of the severest cases that fell to my care, and which was often seen in consultation with Dr. McKay of the U. S. Marine Hospital Service, was that of a young man who had been lodging in close proximity to the back-yards of a butcher shop and a stable, which together furnished such a foul and contaminated air to his bedroom that a typhoid fever of more than usual malignancy—for this climate—was the result. One lung became congested at the most critical period of the case, and the hæmorrhage from the bowels was very alarming. The late Dr. T. A. Davis and the consultants all pronounced it typhoid fever, but no other case originated from this one.

Many Easterners, by a too narrow construction or interpretation of what they read or of what is said about our climate and its effects, often remind me of the Irishman who on first landing in New York refused to pick up a silver dollar which he found on the street, not wishing to burden himself down with such bulky metal, as he expected to pick up

golden twenties further on. All that is said about this region is purely *relatively* to the rest of the country, and it should be only so considered. I have seen pneumonia from sudden chilling, and typhoid fever and other zymotic diseases arise from filth; I have seen disease incidental to debauchery, gluttony, and overdoing; and all the accidents which are liable to attack the too promiscuous and reckless worshipper at the shrine of Venus Porcina are to be met with in the strayer from the path that is narrow and crooked —are just as possible here as in New York or in Boston.

Because we say that many localities are as innocent of endemic malaria as a Hindoo's larder is of roast beef, it must not be inferred that one can come here and sleep with impunity in an old-fashioned outhouse with the ordinary Western pit or vault underneath; nor because pneumonia is a great rarity, need one imagine that he can work himself into a perspiration and then suddenly cool off in our breeze and shade without some risk. As before remarked, the laws of health must be observed wherever you go. Any recklessness in the matter of diet will load you up with uric acid here as it will elsewhere; the facility for open-air exercise and for free ventilation at night may mitigate the effects of this acid, and you may not be so subject to rheumatism, migraine, or gout—the risk of contracting these disorders is greatly diminished here—but any imprudence, revelry, or gluttony

will certainly expose one to a certain percentage of risk.

Neither will the simple crossing of the Rockies or the mountains of Colorado, New Mexico, and Arizona, into California, at once do away with all inherited rheumatic or gouty constitutions. It would be folly to promise or to expect such a change, and it is as foolish to at once conclude that you are no better off here than elsewhere because you find that now and then an alleged malarious case turns up, or that there are cases of typhoid fever or of pneumonia and rheumatism, when the chances of being afflicted with these are most certainly greatly diminished.

A climate that necessitates but little, if any, seasonal change of diet—that permits of free ventilation, and where there is no need of seasonal change of either underwear or outer clothing—where you require neither great heating nor great cooling at any season—must logically be a climate where the inducements or invitations to attacks of such diseases as arise from change of weather, diet, or clothes are reduced to a minimum. On the other hand, as mentioned elsewhere, a new arrival must exercise caution, as he will find some very chilly, shady places; in winter such places are apt to be damp, and he must not invite disease if he wishes to avoid it. In some regions of the United States, no care or study may protect you from malarial fever or congestive chills, from an attack of dysentery, diarrhœa, or pneumonia;

whilst here, a little study, consideration, and care will enable you to avoid them all. Such a climate is certainly one that is worth seeking.

On the upper coast—about Puget Sound and the Gulf of Georgia—rheumatism is quite prevalent. It prevails more or less, but in a greatly diminishing degree, as the south is approached, and the immediate coast strip of Southern California has probably the least amount. During my connection with the sailors of the merchant marine, although a great many out-patients and hospital cases were attended, the percentage of rheumatic cases was very small. In the winter of 1870–71 bronchitis and rheumatism—often combined—formed the bulk of the sickness of my regiment in Northern France, oftentimes these complaints affecting most of the men. In San Diego, the U. S. Barracks are situated on a low piece of ground where the rising tide brings water to within two or three feet of the ground level; the grounds are in the most exposed situation, and, in addition, the sewage tank of the city is immediately to the west of the barracks; and yet, with all this to lower vitality, there were only seven cases of rheumatism reported for the twelve months of 1892, and only one for this year (now August, 1893); there were likewise reported five cases of acute and chronic bronchitis and two of pneumonia during the same period.

Physicians and invalids should not forget that it does not necessarily follow, because these cases

occur here, that those coming here from elsewhere with either rheumatism, gout, bronchitis, or asthma will not improve. Many have come here suffering severely and made good and permanent recoveries; in others, the disease or its course has been greatly modified.

Asthmatics find their ailment as capricious here as elsewhere. The general tendency, however, is to lessened attacks and lessened vigor of the attack. There are medium altitudes in the interior wherein these cases experience the greatest relief. One very capricious case that I attended could only find relief when in the damp and more variable air of Oregon; the day after his return to San Diego he invariably experienced a set-to with his enemy. Another case did well in Riverside and not well on the coast. The asthmatic must simply experiment until he finds a favorable locality—and then let him remain there. Ashmatics from elsewhere can, as a rule, count on finding relief here. The case relieved by the Oregon air originated here, but will eventually have to make Oregon or Washington its permanent home.

A strange commentary on dry and moist climates as affecting health I found in the reports made to me by one of the members of the Cedros Island Mining Company—a high mountainous island some six hundred miles to the south of San Diego and far out in the Pacific. The climate is necessarily a very pronounced insular climate, and therefore very moist.

The pay rolls show that during the reign of the *grippe* in California nearly two thousand different men were on the island, and the reports show that during the whole of that period, although the island was in constant communication with San Diego and Ensenada by sail and steamer, there was not a case of influenza or of the *grippe* on the island. Residents report the climate as simply perfection, and ascribe its salubrity and agreeableness *to its excessive dryness.*

CHAPTER IX.

DISEASES OF CHILDREN AND OF OLD AGE.

In other countries, as well as in other regions of the United States, where great and sudden changes of temperature exist, there is always a correspondingly high infant mortality. In fact, the healthfulness of a climate may in a manner be determined by its kindly or unkindly treatment of infants. Elsewhere, with the advent of the warmer months of spring, pneumonia carries off a certain percentage of the infant population, and no child under five years of age, however healthy, can be said at that season to be free from the danger of a sudden lung congestion. As the summer approaches, intestinal derangements and dangers replace the pulmonic enemies of the spring months. Cholera infantum, diarrhœas, and dysenteries then carry off a quota proportionate to the extreme condition of the weather. This was severely experienced in the East during the present summer (1893), when the deaths from cholera infantum reached an alarming ratio. This great death-rate among the infant class is there purely due to climatic or meteorological causes; three days of Southern California's summer weather in New York when that city is experiencing the most fatal ravages from cholera infantum, and the disease and its attending great fatality would disappear as if conjured away by Hygeia's magic wand.

Whenever the disease appears in New York, it is not whether your hygienic surroundings are of the best or of the poorest that will either protect or make your children fall victims to the disease. It simply becomes a question of physical resistance to the depression of the weather, as to whether the child will escape or not. In California it is quite otherwise. If the father of the family has built his house as the weather of the region demands, and if the mother uses but ordinary precautions, there is no need of there ever being any cholera infantum. Florida is said to enjoy a like climatic immunity in this regard, so that California is not unique in the possession of this climatic pearl. In speaking of intestinal disorders and of children's diseases in this region, Dr. Bullard says as follows:

"As there is little or no malaria, it is not surprising to find that those maladies which are frequently its sequelæ are not very common—diarrhœa, diseases of the liver, and intestinal disorders generally. The dryness of the fruit season, doubtless, renders it more healthy than it would otherwise be. These troubles are poorly represented at the County Hospital, gastritis leading the list, but that was chiefly of alcoholic origin. One case of gastritis, two of hepatitis, and four of cirrhosis of the liver, made up the mortality of the group. In the city they accounted for less than 6 per cent. of the deaths, including peritonitis, but exclusive of summer diarrhœa in children,

which was otherwise classified. Adding this last trouble and making a liberal allowance of one-fourth for all possible sources of error, even then this combination would be under the ratio usually assigned to diarrhœal diseases alone.

"The general healthfulness of any place can be quite accurately gauged by the mortality among infants. Forty per cent. of all deaths in the United States occur under the age of five years; in Los Angeles that per cent. is 23½. To remove any unfairness which the advent of many moribund adults gives these figures, the calculation based on the population shows that while the death rate under five years throughout the country is 6 per thousand, that of this city is only 3.17, not much over half as great. The acute zymotic diseases accounted for about a third of this number. Diphtheria and croup combined, though the most virulent, caused about one-third as many deaths as the ratio in the colder parts of the country, and was, as well as the few instances of scarlet fever, more common in the winter. Two other zymotic diseases, measles and whooping-cough, were much more prevalent and caused more deaths than scarlet fever, because they were never quarantined; each was more frequently seen in summer. The most noticeable feature was the rarity of cholera infantum and infantile diarrhœa; only eighty-five deaths, about one-eighth of the total, were accredited to these troubles. Bronchitis and pneumonia, already classified, besides

various non-climatic diseases, inanition, meningitis, eclampsia, dentition, scrofulosis, etc., occasioned the other two-thirds of the deaths among children."

Were the use of ice-water and a too free indulgence in fruits—which are here plentiful at all seasons —interdicted to small children, the number of cases of sickness of the intestinal order would be still more diminished. As the coast is approached, there is greater freedom from these diseases; in this regard the coast towns have some advantage over the interior.

Epidemic diseases, or such as are liable to become so from their infectiousness or contagiousness, never assume a severe or a widespread epidemic type here. Diphtheria has made its appearance several times, but in every instance it failed to become disseminated. What cases occurred were all traceable to some direct communication with some specific infection. It has been so with smallpox. The coast climate is of too low a temperature for yellow fever, so that disease has never gained a foothold on our shores.

What has been said of childhood is equally applicable to old age, as here none of the usual enemies that lie in wait elsewhere to beset the path of the aged and bring their lives to a sudden ending are to be met. No pneumonia of the aged, no unlooked-for attacks of consumption. No protracted bed-ridden periods await to make their last days miserable.

Euthanasia is probably more the common ending of those far advanced in years in California than it is in any other State of the Union. This may really be said to be the paradise of childhood and of old age.

In closing this chapter and the subject of diseases, the remarks of Dr. Bullard and his corrected comparative table of death rates are peculiarly pertinent:

"According to the official figures Los Angeles shows a marked pre-eminence over the general average, both in percentage of deaths and in ratio to the population, in three diseases—phthisis, heart disease, and cancer; in two classes of troubles she is considerably under the mean—gastro-intestinal disorders, and diseases of children; and in most other maladies she presents a ratio slightly under what the population demands. Correcting these by making the proper allowances for the large invalid immigration, phthisis will be found to be exceptionally rare, cancer brought down to the usual per cent., Bright's disease lowered from the usual to half the normal proportion; heart disease becomes less frequent, and nearly all chronic diseases less prevalent."

COMPARATIVE DEATH-RATES.

Death rate 15.09 per 1000 in the United States.

Death rate 13.27 in Los Angeles.

Deaths under 5 years in the United States, 6.02.

Deaths under 5 years in Los Angeles, 3.16.

SOME OF THE PRINCIPAL DISEASES.

Phthisis	United States	2.54
	Los Angeles official	3.18
	Los Angeles corrected	.07
Pneumonia	United States	1.25
	Los Angeles official	1.05
Typhoid	United States	.41
	Los Angeles official	.37
Gastro-intestinal	United States	1.00
	Los Angeles official	.80
Heart Disease	United States	.47
	Los Angeles official	1.03
	Los Angeles corrected	.75
Cancer	United States	.31
	Los Angeles official	.37
	Los Angeles corrected	.26
Bright's	United States	.65
	Los Angeles official	.43
	Los Angeles corrected	.31

CHAPTER X.

TABLES AND GENERAL SUMMARY.

Table No. I gives a comparison of the summer and winter weather in Southern California as exemplified by a recent August and a January set of observations. When we contrast the total wind movement at Los Angeles or Santa Barbara or San Diego with the totals of New York or Chicago, taken by the same Weather Service, we can easily see how mild are the Southern California winds. Table No. I is for August of 1892 and for January of 1893, and Table No. II is for the months of January and June of 1893. Comparisons between these two tables will show the great difference in the respective climates.

Table No. III gives the monthly meteorology of Los Angeles from July 1, 1892, to June 30, 1893.

Table IV gives the weather for each month at San Diego from July 1, 1892, to June 30, 1893.

Table V gives the weather for each month at Santa Barbara from May 1, 1892, to April 30, 1893, taken from the observations of Hugh D. Vail, Esq.

Table VI gives the summary of the monthly observations for the same months as shown at Santa Barbara. This table is taken from the observations of Dr. A. K. Johnson for the city of San Bernardino.

Table VII exhibits the maximum and minimum temperature as registered at Coronado Beach by a

Weather Bureau self-registering thermometer. Unfortunately at this station no other meteorological data were taken. This table is for the two extreme months—January of 1893 and August of 1892. This furnishes a good idea of the actual seasonal differences and of the extremes of temperature experienced at this resort.

Table VIII gives the thermographic tracings for the first week of January—January 2d to January 9th —of 1893; and also the complete tracings of the thermograph for the first week of June of 1893—June 1st to June 7th. This table applies to San Diego. Unfortunately neither Los Angeles nor any of the other stations are furnished with a thermograph, so that it is impossible to give the tracings from those stations. This table furnishes the hourly temperature for those two extremely placed weeks. The writer has always been a firm believer in Southern California's sea-coast summer weather, and the tracing for June shows what little fluctuation of temperature takes place during the summer. The thermograph is automatic and self-registering, and the tracings here given were kindly furnished the author by the Weather Bureau at Washington.

A daily record of winter and summer weather at Los Angeles and San Diego is given in tables IX and X.

Tables XI and XII are reproductions of the California weather summaries for the months of August, 1892, and January, 1893. They take in all of Cali-

fornia, and will give the reader a comparative view of the weather at different California points.

With these tables the reader can form a tolerably good idea of what he may expect. My friend T. S. Vandyke, Esq., relates that on one occasion a Western man arrived in San Bernardino early one morning and awoke to see that during the night some little snow had fallen. He had come for the winter, but this evidence convinced him that Ananias was not dead; he immediately left the town, concluding that if he must plod and wade in snow he might as well do it in Wisconsin. Others look reproachfully at every old residenter as if he were a gleeful prevaricator and only intent on deceiving gullible Easterners, every time it rains. These cannot understand how it should ever rain in a place called the land of sunshine. The best way is to come prepared to make the best of a tolerably good climate, and not to worry too much at anything unavoidable or that may be unusual or out of the way.

Southern California is peopled by an essentially wealthy class, who are not obliged to stay here, nor would they but for the firm conviction that it is the best climate on earth where man can combine business, recreation, civilization, and the speaking of the English tongue. These men simply live here because they know, after two or three winters taken on trial and one or two summers, that they can here enjoy the greatest amount of comfort and escape the great-

est possible amount of weather and climatic discomforts. The first season was tentative, on the second they came to see if it would confirm the impressions of the first, and the third season generally confirms them in the belief that they do not want to live anywhere else. They then purchase a site and erect a home, and soon transfer all their business interests to their new home and State. Such is the history of our population. Some, in their enthusiasm, may overcolor or over-praise the new country, its climate or its productions, but this is not intended as deception nor should it deceive anyone.

In reference to the great heat experienced during some of the summer months in some of the interior stations, which must cause an Easterner to wonder how such things can be and men be in them and live—as, for instance, the high temperature reached at San Bernardino in July of 1892, of 104°, a temperature which in August of the same year reached 105°—it should be stated that at those times the relative humidity, which for July had a monthly mean of 55, fell at the period of the great heat to 21 per cent. In the following month, with one degree more of heat, the relative humidity fell to 15 per cent.

How the high readings recede from each other—temperature and humidity—one going steadily down as the other goes up, may be seen from the more detailed tables of Dr. Johnson, relating to the San Bernardino meteorology, showing the relative play that

the humidity percentage makes during the day in making life possible and agreeable. The nights are always cool here, and but for the equalizing effects of the humidity they would perhaps be unbearably cold; one that has ever experienced piercing cold California blasts, or the blasts that sweep down the Alpine passes in northern Italy or in Switzerland, or those that suddenly sweep down the sides and declivities of the Appenines and give a Siberian hue to the genial and mellow Riviera, know but too well what this cold would mean but for the modifying effects of a latent-heat-retaining moisture. Here at the hour of the greatest possible cold—in the night—the humidity gradually increases. For the July in question—that of 1892—the mean morning humidity was 67 per cent.; that of noon, 38 per cent.; and that of the evening, 60.6 per cent.

One coincident peculiarity of all regions that possess these atmospheric conditions in a like degree —California, Australia, and the long coast strip lying between the foot of the Andes and the Pacific Ocean in South America—is the general immunity that is enjoyed in regard to canine madness, or rabies, and sunstroke. That the same meteorological conditions that exempt from these diseases, also grant a certain degree of immunity in regard to pneumonia and apoplexy, as well as cholera infantum, cannot be doubted. We may know that certain things exist without being able fully to explain their causes.

TABLE I.—SOUTHERN CALIFORNIA WINTER AND SUMMER WEATHER COMPARED.

MIDSUMMER METEOROLOGICAL SUMMARY, AUGUST, 1892.

STATIONS.	TEMPERATURE.			Mean Barometer.	Relative Humidity.	RAINFALL.		WEATHER.			WIND.	
	Mean.	Max.	Min.			Days.	Am't.	Clear.	Fair.	Cloudy.	Direction.	Total Mov't.
Los Angeles	72.0	94.0	53.0	29.92	74.0	1	.01	12	19	0	W	2437
San Diego	67.8	80 0	57.0	29.93	78 0	2	.05	14	10	7	W S	3628
Santa Barbara	66.3	88.0	50.0	.....	76.0	0	.05	17	8	6	W	2921
Yuma	90.0	114.0	66.0	29.79	43.0	1	.02	29	2	0	S	5050
San Bernardino	75.0	105.0	49.0	.....	56.0	0	.0	19	12	0	W	.....

MIDWINTER METEOROLOGICAL SUMMARY, JANUARY, 1893.

STATIONS.	TEMPERATURE.			Mean Barometer.	Relative Humidity.	RAINFALL.		WEATHER.			WIND.	
	Mean.	Max.	Min.			Days.	Am't.	Clear.	Fair.	Cloudy.	Direction.	Total Mov't.
Los Angeles	57.0	84.0	35.0	30.05	66.0	7	6.29	17	7	7	NW	2403
San Diego	57.0	80.0	38.0	30.042	65.3	3	0.78	19	6	6	NW	2965
Santa Barbara	55.7	80 5	38.5	.....	68.0	4	4 41	18	5	8	NW	2077
Yuma	59.0	79.0	33.0	30.03	28 0	0	T	17	8	6	N	4904
San Bernardino	53.9	82.0	30 0	.....	52.0	6	4.36	23	2	6	N	.....

TABLE II.—SUMMER AND WINTER IN NEW YORK, CHICAGO, ST. PAUL, AND DENVER.

(951—*Rec.*—1893.)	N. Y. CITY.		CHICAGO.		ST. PAUL.		DENVER.	
	Jan.	June.	Jan.	June.	J n.	June.	Jan.	June.
Temperature { Maximum	52°	96°	46°	85°	33°	91°	64°	94°
Temperature { Minimum	1	53	-16	48	-23	47	13	38
Temperature { Mean	28.3	69 4	12.0	37.8	3.2	71.4	38.3	68.6
Barometer, mean	29.98	30.02	30.03	29.96	30.11	29.90	30.11	29.84
Humidity, mean	71.0	75.6	87.8	73.8	74.2	64.3	39.1	37.6
Rainfall { No. of days	18	16	19	11	20	9	4	11
Rainfall { Am't (inches)	3 56	2.56	2.08	3.59	0.73	2 00	0 05	0.13
Weather (No. of days) { Clear	6	6	5	12	9	13	18	16
Weather (No. of days) { Partly Cloudy	14	16	10	12	9	8	13	10
Weather (No. of days) { Cloudy	11	8	16	6	13	9	0	4
Wind { Direction	NW	NE	NW	NE	NW	SE	S	S
Wind { Movement	8815	6266	12462	10451	5746	5519	7455	5256

U. S. Department of Agriculture, Weather Bureau, Records Division.

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Santa Barbara	66.3	88.0	50.0	.....	76.0	0	.05	17	8	6	W	2921
Yuma	90.0	114.0	66.0	29.79	43.0	1	.02	29	2	0	S	5050
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MIDWINTER METEOROLOGICAL SUMMARY, JANUARY, 1893.

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San Diego	57.0	80.0	38.0	30.042	65.3	3	0.78	19	6	6	NW	2965
Santa Barbara	55.7	80 5	38.5	.....	68.0	4	4 41	18	5	8	NW	2077
Yuma	59.0	79.0	33.0	30.03	28 0	0	T	17	8	6	N	4904
San Bernardino	53.9	82.0	30 0	.....	52.0	6	4.36	23	2	6	N	.....

TABLE II.—SUMMER AND WINTER IN NEW YORK, CHICAGO, ST. PAUL, AND DENVER.

(951—*Rec.*—1893.)	N. Y. CITY.		CHICAGO.		ST. PAUL.		DENVER.	
	Jan.	June.	Jan.	June.	J n.	June.	Jan.	June.
Temperature { Maximum	52°	96°	46°	85°	33°	91°	64°	94°
Temperature { Minimum	1	53	-16	48	-23	47	13	38
Temperature { Mean	23.3	69 4	12.0	67.8	3.2	71.4	38.3	68.6
Barometer, mean	29.98	30.02	30.03	29.96	30.11	29.90	30.11	29.84
Humidity, mean	71.0	75.6	87.8	73.8	74.2	64.3	39.1	37.6
Rainfall { No. of days	18	16	19	11	20	9	4	11
Rainfall { Am't (inches)	3 56	2.56	2.08	3.59	0.73	2 00	0 05	0.13
Weather (No. of days) { Clear	6	6	5	12	9	13	18	16
Weather (No. of days) { Partly Cloudy	14	16	10	12	9	8	13	10
Weather (No. of days) { Cloudy	11	8	16	6	13	9	0	4
Wind { Direction	NW	NE	NW	NE	NW	SE	S	S
Wind { Movement	8815	6266	12462	10451	5745	5519	7455	5256

U. S. Department of Agriculture, Weather Bureau, Records Division.

TABLE III.—LOS ANGELES WEATHER FROM JULY 1, 1892, TO JUNE 30, 1893.

MONTH.	TEMPERATURE.					Rainfall.	WIND.			HUMIDITY.		
	Highest.	Lowest.	Mean.	Greatest Daily Range, and Date.	Least Daily Range, and Date.		Total Movement.	Prevailing Direction.	Maximum Velocity, and Direction.	Mean.	Highest.	Lowest.
1892.												
July.	90°	50°	68°	34° 1st	16° 26th	.00	2539	W	18 W	76%	100%	37%
August.	94	53	72	32 14th	13 22d	.01	2488	W	18 SW	74	95	45
Sept.	95	50	68	36 24th	14 21st	.00	2193	W	14 W	79	100	45
Oct.	96	40	64	40 2d	8 6th	.33	2291	W	16 SW	69	97	26
Nov.	90	41	62	39 9th	7 28th	4.40	2253	W	21 N	64	100	26
Dec.	81	35	54	30 9th	5 2d	4 18	2770	W	24 NE	72	100	27
1893.												
Jan.	84	35	57	37 8th	5 31st	6.29	2393	NW	23 E	69	101	35
Feb.	79	38	55	33 20th	4 8th	2.27	2666	NE	28 N	73	100	30
March.	88	31	54	34 27th	6 20th	8.52	3150	NE	24 E	79	100	48
April.	84	39	58	33 20th	7 5th	.19	3018	W	28 N	71	96	30
May.	90	45	63	34 21st	8 8th	.06	3046	W	14 W	75	100	24
June.	90	48	66	36 15th	13 12th	.03	2633	W	14 W	74	100	44

Weather Bureau Observer's Office, Los Angeles, Cal.

TABLE IV.—SAN DIEGO WEATHER FROM JULY 1, 1892, TO JUNE 30, 1893.

MONTH.	TEMPERATURE.					Rainfall.	WIND.			HUMIDITY.		
	Maximum.	Minimum.	Mean.	Greatest Daily Range, and Date.	Least Daily Range, and Date.		Total Movement.	Prevailing Direction.	Maximum Velocity, and Direction.	Mean.	Maximum.	Minimum.
1892.												
July.	75°	57°	65°	17° 9th	7° 24th	0.00	3723	W	17 SW	88%	97%	64%
August.	80	57	68	18 16th	6 28th	0.05	3628	SW	14 SW	84	95	58
Sept.	80	54	65	19 18th	8 11th	T	3480	NW	18 NW	88	97	60
Oct.	83	46	63	27 18th	7 5th	0 22	3139	W	18 NW	76	95	22
Nov.	84	40	61	28 10th	5 29th	0.94	2662	S & NW	18 NW	68	97	16
Dec.	71	36	63	26 18th	6 26th	0.69	3221	NE	17 N	73	97	21
1893.												
Jan.	80	38	57	34 8th	8 27th	0.78	2965	NW	17 S	65	94	19
Feb.	75	40	54	34 20th	6 1st	0.47	3430	NW	22 NW	69	97	20
March.	75	40	54	25 13th	4 20th	5.50	4649	W	34 S	78	97	34
April.	78	43	58	24 19th	6 23d	0 22	3849	W	22 NW	70	94	25
May.	88	49	61	35 22d	7 8th	0 39	4311	W	24 S	75	94	29
June.	75	53	63	20 21st	7 4th	T	3542	W	14 W	79	94	64

United States Weather Bureau, San Diego, Cal.

TABLE V.—WEATHER AT SANTA BARBARA, CAL., FROM MAY 1, 1892, TO APRIL 30, 1893.

MONTH.	TEMPERATURE.				Number of Rainy Days.	Total Rainfall, in inches.	Mean Relative Humidity.	Number of Clear and Fair Days.	Prevailing Direction of Winds.	Total Movement of Wind, in miles.
	Mean.	Highest.	Lowest.	Mean Daily Range.						
May	60.8	98.0	42 0	17.0	5	1.12	74	18	W	
June....	61.0	78 0	47.0	17.6	0	0.	72	27	SE	
July.. ..	63.5	81 5	53 0	16.0	0	0.	77	29	E & SE	
August..	63.3	88 0	50.0	16.8	0	0.	76	25	W	2921
Sept.....	64.2	86.0	50.0	18.3	0	0.	78	28	E	
Oct.....	62.0	91 0	43 0	20.4	3	0.26	76	26	W	
Nov	60.2	87.0	42.0	21.4	4	4.27	67	26	ESE	
Dec.....	54.4	76.0	38.0	16.2	6	6 66	71	24	W	
Jan.....	55.7	80.0	38.0	20.2	4	4.41	68	23	NW	2077
Feb.....	58.4	72.0	38.0	18.4	4	3.10	69	20	NW	2633
March	53.1	82.0	38.0	15.6	11	7.80	71	14	WNW	3572
April ...	57.0	80.0	40.0	20.2	2	0.38	66	26	NW	3554

Observations taken by Hugh D. Vail, Esq.

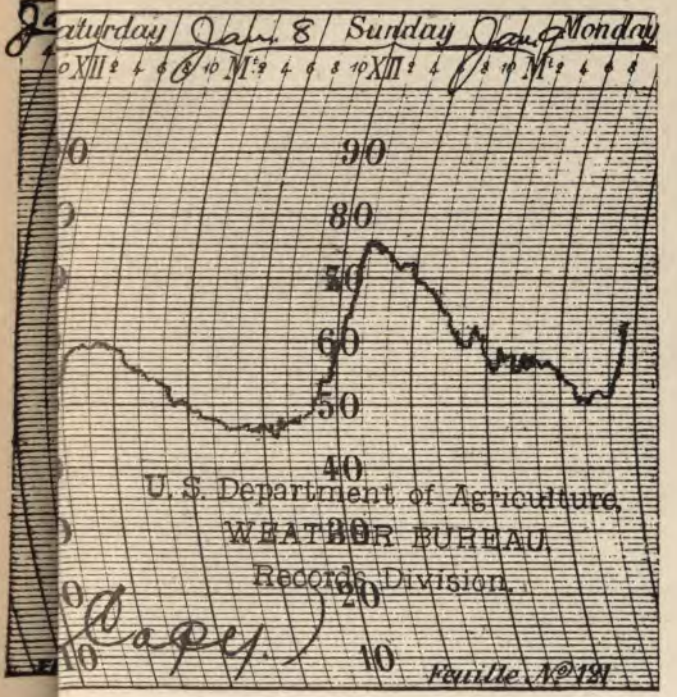
TABLE VI.—WEATHER AT SAN BERNARDINO FROM MAY 1, 1892, TO APRIL 30, 1893.

MONTH.	TEMPERATURE.				Number of Rainy Days.	Total Rainfall, in inches.	Mean Relative Humidity.	Number of Clear and Fair Days.	Prevailing Direction of Winds.
	Mean.	Highest.	Lowest.	Mean Daily Range.					
May.....	64 3	99	42	25.3	5	2.10	74	15	W
June.....	67.7	97	42	34.2	2	0.08	62	28	W
July.....	73.7	104	48	37.8	0	0.	55	30	W
August.....	75.	105	49	29.4	0	0.	56	31	W
Sept.....	70.5	95	44	34.0	0	0.	54	30	W
Oct.....	61.4	95	35	28.4	4	0.16	62	22	WNW
Nov.....	57.8	86	29	31.9	6	1 02	54	26	NW
Dec.....	50.5	77	26	20.9	5	2.23	62	26	N
Jan.....	53.9	82	30	31 0	6	4 36	52	25	N
Feb.....	52 5	77	30	24.9	6	3.37	67	21	N
March.....	53.9	89	30	23.2	11	8.	75	19	SW
April	58.8	86	35	28.0	3	0.48	65	28	W

Observations taken by Dr. A. K. Johnson.

TABLE VII.—WINTER AND SUMMER MAXIMUM AND MINIMUM TEMPERATURES AT CORONADO BEACH, CALIFORNIA.

JANUARY, 1893.			AUGUST, 1892.		
Date.	Max.	Min.	Date.	Max.	Min.
1	69	48	1	72	65
2	73	54	2	73	66
3	77	55	3	73	63
4	63	53	4	70	65
5	64	50	5	68	62
6	57	46	6	70	63
7	63	44	7	73	66
8	75	46	8	70	63
9	71	53	9	71	64
10	60	48	10	76	66
12	63	45	11	75	67
13	71	48	12	74	65
14	62	52	13	75	68
15	64	49	14	77	67
16	64	51	15	74	66
17	60	54	16	77	68
18	59	50	18	77	63
19	65	48	19	70	64
20	64	47	20	71	62
21	63	50	21	71	63
22	62	49	22	72	60
23	66	48	23	73	67
24	71	50	24	72	68
25	72	52	25	76	60
26	60	51	26	75	59
27	58	47	27	75	69
28	60	55	28	73	68
29	62	50	29	76	70
30	64	51	30	74	70
31	60	55	31	75	69


Saturday Jan. 8 Sunday Jan. 9 Monday
XII 2 4 6 8 10 M 2 4 6 8 10 XII 2 4 6 8 10 M 2 4 6 8
90
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70
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50
40
30
20
10
U. S. Department of Agriculture,
WEATHER BUREAU,
Records Division.
Feuille No. 121

TABLE IX.—WINTER AND SUMMER WEATHER AT LOS ANGELES, CALIFORNIA.

JANUARY, 1893.					AUGUST, 1892.				
Date.	TEMPERATURE.			Precipitation in inches and hundredths.	Date.	TEMPERATURE.			Precipitation in inches and hundredths.
	Mean.	Max.	Min.			Mean.	Max.	Min.	
1	60	78	42	0	1	76	89	62	0
2	66	83	50	0	2	74	87	60	0
3	58	84	53	0	3	76	89	60	0
4	62	77	48	0	4	78	92	65	0
5	58	75	42	0	5	74	84	63	0
6	54	69	39	0	6	71	81	61	0
7	51	62	40	0	7	70	78	62	T
8	61	80	43	0	8	68	76	61	.01
9	65	76	54	0	9	68	76	61	0
10	50	65	35	0	10	66	74	59	0
11	52	65	38	0	11	64	76	53	0
12	60	74	47	0	12	67	80	54	0
13	63	73	53	0	13	70	85	54	0
14	56	69	42	0	14	73	89	57	0
15	59	69	49	0	15	76	89	62	0
16	53	60	46	.10	16	78	94	62	0
17	54	64	43	0	17	78	90	67	0
18	55	69	41	0	18	78	90	65	0
19	57	73	41	0	19	76	86	65	0
20	56	68	43	0	20	71	81	61	0
21	54	68	41	0	21	74	84	63	0
22	57	74	40	0	22	72	78	65	0
23	64	81	47	0	23	71	79	63	0
24	64	80	48	0	24	70	79	60	0
25	56	72	40	0	25	70	80	60	0
26	50	54	45	.03	26	69	77	61	0
27	55	62	48	2.10	27	68	77	59	0
28	54	61	47	.16	28	69	78	60	0
29	50	57	44	.01	29	68	76	60	0
30	53	56	50	2.19	30	68	78	39	0
31	56	59	54	1.79	31	70	81	60	T

TABLE X.—WINTER AND SUMMER WEATHER AT SAN DIEGO, CALIFORNIA.

JANUARY, 1893.					AUGUST, 1893.				
Date.	TEMPERATURE.			Precipitation, in inches and hundredths.	Date.	TEMPERATURE.			Precipitation, in inches and hundredths.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
1	73	41	57		1	73	68	68	
2	80	50	65		2	74	62	68	
3	78	50	64		3	78	62	70	
4	72	52	62		4	76	63	70	
5	71	47	59		5	70	63	66	
6	60	39	50		6	71	64	68	
7	60	39	50		7	72	64	68	
8	76	42	59		8	70	61	66	.04
9	76	48	62		9	71	60	66	
10	73	42	58		10	70	60	65	
11	66	38	52		11	72	63	68	
12	77	44	60		12	72	59	66	
13	73	49	61		13	73	57	65	
14	69	45	57		14	73	57	65	
15	68	46	57		15	77	62	70	
16	60	51	56	T	16	80	62	71	
17	63	45	54	T	17	77	64	70	
18	66	42	54		18	74	65	70	
19	68	41	54		19	73	66	70	
20	67	45	56		20	76	64	70	
21	66	41	54		21	74	65	70	
22	72	42	57		22	72	65	68	
23	75	47	61		23	72	63	68	
24	76	46	61		24	72	63	68	
25	68	44	56		25	72	63	68	
26	61	44	52	T	26	72	64	68	
27	62	54	58	.31	27	72	63	68	
28	64	53	58		28	70	64	67	
29	64	47	56		29	71	63	67	
30	65	54	60		30	72	63	68	
31	64	56	60		31	72	63	68	

TABLE XI.—CALIFORNIA—TABULAR STATEMENT FOR AUGUST, 1892.

(From the *Occidental Medical Times.*)

STATIONS.	TEMPERATURE.						RAINFALL.		Mean Relative Humidity.	WEATHER.			WIND.
	Mean.	Highest.	Lowest.	Mean Highest.	Mean Lowest.	Mean Daily Range.	No. of Days Rain Fell.	Total Rainfall.		No. of Clear Days.	No. of Fair Days.	No of Cloudy Days	Prevailing Direction.
Auburn	76.6	105.0	58.0	.....	.....	.....	....	0.00	.....	....	....	....	NE
Berkeley	59 5	89.5	51.0	69.9	54.6	14.7	0	0.00	81.6	11	5	15	SW & W
Colfax	75.3	105.0	48.0	.....	.....	.....	....	0.00	.....	....	....	....	NE
Eureka	56 2	68.0	47.0	61.1	51.4	9 7	2	0 09	92 8	7	13	11	NW
Fresno	81.4	112.0	55.0	99 4	63 5	.....	0	0.00	33.8	31	0	0	NW
Keeler	82.0	103 0	62.0	94 6	69.4	25 2	0	T	22 4	24	6	1	SW
Los Angeles	72.0	94.0	53.0	82.4	60.8	21.5	1	0.01	74.0	12	19	0	W
Monterey	62.4	86 0	50.0	.....	.....	.....	....	0.00	.....	....	....	....	S
Napa	62 3	98.0	50 0	.....	.....	.....	....	0.00	.....	....	....	....	S
Oakland	64.0	88.0	51.0	73.7	54.5	19.2	0	0.00	87 0	10	16	5	W
Paso Robles	72.4	107.0	50.0	....	....	.....	..	0.00	.....	....	....	....	S
Red Bluff	80 0	108.0	55 0	96.2	64 5	....	0	T	38.2	29	0	2	SE
Sacramento	73.0	106.0	52 0	88.8	57.2	31.6	0	0 00	63.7	27	4	0	S
San Bernardino	.....	.....	.....	.....	.....	.....	...	.....	.....	....	....	....	.....
San Diego	67.8	80 0	57.0	73.0	62 5	10.5	2	0 05	78 0	14	10	7	SW
San Francisco	59.4	92.0	50.0	65 5	53.3	12.2	0	0.00	83.6	10	13	8	W
Santa Barbara	66.3	88.0	50 0	74.7	57.9	16.8	0	0.00	76.0	17	8	6	W
Santa Cruz	62 8	87.0	50.0	.....	.....	.....	....	0 00	.....	....		....	NW
Yuma, Arizona	90.7	114.0	66.0	.....	...	.....	0	T	.....	29	2	0	S

Blank (....) indicates data missing

TABLE XII.— CALIFORNIA—TABULAR STATEMENT FOR JANUARY, 1893.

(From the *Occidental Medical Times.*)

STATIONS.	TEMPERATURE.						RAINFALL.		Mean Relative Humidity.	WEATHER.			WIND.
	Mean.	Highest.	Lowest.	Mean Highest.	Mean Lowest.	Mean Daily Range.	No. of Days Rain Fell.	Total Rainfall.		No. of Clear Days.	No. of Fair Days.	No. of Cloudy Days.	Prevailing Direction.
Auburn	50.6	76.0	33.0	.....	.....	.....	....	5.33	.....	....	....	....	SE
Berkeley	44.2	57.0	35.0	53.3	40.3	13 0	7	3.90	87.0	18	3	10	N
Colfax	50.3	88.0	27.0	.....	.....	.....	....	7 62	.....	...	...	...	N
Eureka	44.7	59.0	33.0	53.3	39.1	11.2	9	3.65	93.0	3	15	13	SE
Fresno	42.8	69.0	29.0	49.2	36.5	12.7	5	1.04	89.0	2	8	21	NW
Keeler	43.1	58.0	29 0	52.7	33.5	19.2	5	0.71	45.0	16	7	8	SW
Los Angeles	57.0	84.0	35.0	69 6	44.9	24.7	7	6.29	66.0	17	7	7	NW
Monterey	51.1	68.0	30.0	.....	.....	.....	....	1.73	.....	....	....	....	S
Napa	46.8	63.0	32.0	53 8	39 8	14.0	11	4.27	85.0	7	10	14	S
Oakland	42.3	64.0	32.0	52 5	35.0	17.5	6	3.68	95.0	18	6	7	NW
Paso Robles	43.9	68.0	22.0	.....	.....	.....	....	3.28	.....	....	....	....	SE
Red Bluff	43.2	65 0	28 0	51.1	35.3	15 8	6	3 82	89 0	5	18	8	SE
Sacramento	42.1	56 0	34.0	46.1	38.1	8.0	4	3.27	88 0	5	2	24	SE
San Bernardino	53 9	82.0	30.0	69.0	38 0	31.0	6	4.36	52 0	23	2	6	N
San Diego	57.4	80 0	38.0	68 8	45.9	22 9	3	0.78	65.0	19	6	6	NW
San Francisco	47 4	60 0	36.0	53 0	41 7	11.3	6	3 05	81.0	19	3	9	NW
Santa Barbara	55.7	80.0	38 0	65 8	45.6	20.2	4	4.41	68.0	18	5	8	NW
Santa Cruz	50.8	70 0	36 0	.....	.....	.....	6	5 30	.....	...	...	....	SW
Yuma, Arizona	59.2	79 0	33.0	74.3	44 0	30.3	1	T	28 0	17	8	6	N

Blank (....) indicates data missing.

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